

AMERICAN VETERINARY REVIEW,

JUNE, 1894.

NOTICE.—Please address all communications regarding matter for publication, books for Review, Exchanges, etc., to the Editor, 139 and 141 W. 54th St., New York.

EDITORIAL.

NORMANDY BREED OF CATTLE.—That tuberculosis prevails to a great extent in the United States, and especially in the eastern part of the country, is now a well-acknowledged fact. Tuberculine has spoken in many cases. The people are getting uneasy about all that has been said and written on the subject. And now we have legislation on the subject—indemnity granted for the destruction of tuberculous stock. Our owners of fine cattle (Jerseys especially, among which tuberculosis is reported so prevalent,) are having all their herds tested. To what point will all this excitement bring us to? Where will the dairy men look for animals to carry on their business. We believe that these are questions which are occupying their attention.

In glancing over the breeds of milch cows which we think may be called to take the place of the late fashionable race, we are well attracted by the Norman breed, the Cotentine as they are known on the Continent of Europe. This breed is comparatively unknown in America, but few having been imported; but their superior qualities as milkers and as meat producers will necessarily attract the attention of owners of fancy cattle.

“The breed is claimed to be the finest milking race in the world. The Norman cow frequently produces 35 quarts of milk in the 24 hours, and have been known to produce 50 quarts. The average yield of milk per cow is about 300 quarts per year. The butter is of such quality that some of it has been sold as high as one dollar per pound. Their breed furnishes to the

THE KANSAS CITY
VETERINARY COLLEGE
Incorporated July 29th 1891

French markets some of its largest animals, giving the most delicate and savory meat." With such qualities as have been proven by the importations that have been made into this country, and with the scientific established fact that contagious diseases, such as pleuro-pneumonia and tuberculosis, are unknown among the Cotentine cows, are we not justified in believing that with the new impetus that will necessarily be given to the importation of fancy milkers, the Normandy breed is bound to occupy the first rank, and take permanently the place of those that tuberculosis and tuberculine will condemn out of the herds of our wealthy cattle owners?

REGULATION OF VETERINARY PRACTICE.—This is a subject which seems as much to impose itself upon legislators of nations as their governmental action is demanded by those who are engaged in veterinary practice. There is no doubt that this requirement is the necessary conclusion of the progress made by the profession in public estimation, of its value and of the services that it has rendered and can continue to render upon a larger scale when it has at last received the recognition that it deserves.

This regulation, however, is no simple matter to deal with. In this country several States have tried to effect it. Some results have been obtained—certain laws have been passed—from some of them good results can be looked for, but for others the law is so much a dead letter, or the provisions so ridiculous, it is worse than no law at all. But it matters not, the subject is thus agitated. In our last number we published the text of an Act of the Legislature of Virginia, which we were told had become law in that State, to-day one of our correspondents sends us a correction which we publish with another law. Our friend, Dr. A. W. Clement, has also written to us about the bill passed by the Legislature of Maryland. And so it progresses, slowly it is true, but going forward and each legislature brings on new projects and we may hope new improvements.

*
* *
*

WE have repeatedly stated that when once Americans would begin to realize the importance of the veterinary profession, it would take but little for her to be ahead of old Europe. While these remarks may have brought smiles of ironic incredulity to the faces of some of our readers, it is certain that nevertheless the proofs of the correctness of our suggestions are gradually becoming more and more evident, especially in this subject of legislative regulation. Why, as we have said before, many of our States have passed laws to that effect, and how long is it that the veterinary profession has existed in America? Look then at France, the birthplace of the profession, the nursery we might say of the veterinarians of the world, and notwithstanding the energetic efforts made by the whole body of her veterinarians it is only recently that a bill has been introduced in the Chamber of Deputies by the Secretary of Agriculture to reach the point where *we* have already arrived. Our French colleagues have for a long time urged the necessity of such protective measures, but as yet have not succeeded as well as we have on this side of the Atlantic. They have our best wishes for the passage of their bill.

*
* *

In connection with this same subject of "regulation of veterinary practice" there is another channel which of late seems to have been worked up, and that is the appointment of State Board of Examiners. Pennsylvania, New York, Ohio, and we believe other States have entered into the field and gladly we watch the movement and anxiously wait for the result. A State Board of Examiners, however, we fear might do as much mischief as if there was no law nor examination. To be of any advantage it must examine only graduates of veterinary medicine, and not *persons* desirous to practice without diplomas. The days of the self-made practitioner are gone, they must not be revived by legislative action, and we hope that veterinarians will strongly oppose the passage of any bill which would give a new start in life to quackery, so much more dangerous that it would be supported by political influence, as this may after all find its way in

governmental appointments. State Board of Examiners must be appointed to examine or grant certificates of qualifications to veterinary graduates and only to those who may wish to establish themselves in said State, and by veterinary graduates must be well understood all who may possess a diploma no matter from what school, or of what nationality.

MCKILLIP'S VETERINARY COLLEGE.—It is with pleasure that we correct an item published in one of our late issues in relation to the above named institution, whose fate is now in the hands of Prof. O. Schwarzkopf, V.M.D. A school started as a private undertaking, with a course of three years of six months each, is a mark of progress in veterinary teaching which deserves all recommendation at the hands of all veterinarians.

Here is the correction :

CHICAGO, April 20, 1894.

To the Editor of AMERICAN VETERINARY REVIEW :

DEAR SIR :—In the April issue of the REVIEW we notice the news that the McKillip Veterinary College at Chicago will start out as a two-term school of twenty-four weeks each. We wish to state that the writer of this note has been greatly misinformed. From the start it has been our intention to bring this school up to the required standard of education and make it in every respect a credit to the profession, and fortunately we are in possession of means to do so. While it appears impracticable to start, in Chicago, a college with an eight or nine month course, it has been definitely decided to adopt a three term curriculum of six months each. We hope not to be misjudged by the mentioned note and therefore kindly publish this statement in your next issue and oblige.

Yours respectfully,

MCKILLIP VETERINARY COLLEGE.

L. A. MERILLAT, *Secretary.*

AN ERROR OF NAME.—It is through mistake that we printed the name of Prof. J. J. Harger in our last issue in connection with the report of Chairman of the Committee on Sanitary Science and Police. Dr. Robert Formad was the chairman and is entitled to the credit of that excellent article.

DR. W. BRYDEN.—In informing the friends of the Doctor of the severe attack of illness which for a while threatened his life, we are happy to say that he is now considered out of danger.

ORIGINAL ARTICLES.

PREVENTION OF TUBERCULOSIS.

By DR. J. M. PARKER, Haverhill, Mass.

A Paper Read before the Massachusetts State Veterinary Association.

Believing that the State Veterinary Association ought to lead in formulating laws for the attempted prevention of tuberculosis, I have endeavored, in a rough way, to bring the matter before the Association, so that, if thought advisable, some action might be taken on the matter.

At the present time prophylactic measures for the purpose of controlling and checking the spread of tuberculosis are attracting a great deal of attention, not only from the Veterinary profession, but Medical Associations and State Boards of Health throughout the country are taking the matter up, and in several states the Health officials have placed tuberculosis on the list of Contagious Diseases, and otherwise have taken decided action on the matter.

Michigan was the first to adopt this line of action, and on September 30, 1893, "The Michigan State Board of Health unanimously decided that consumption is a dangerous, communicable disease, and must be reported by physicians and householders to the several Boards of Health."—*Medical Record*, November 18, 1893.

Pennsylvania next came into line, and in October the "Philadelphia County Medical Society" appealed to the Board of Health of Philadelphia to place tuberculosis upon the list of contagious diseases to be reported to the Board.

The Health Department of the State of New York, acting on the advice of Dr. H. M. Biggs, the Bacteriologist of the Department, has taken a similar position, (see page 832, *Medical Record*, December 23, 1893).

While at Chicago the American Public Health Association,

in conjunction with the International Congress of Public Health, adopted the following practical recommendations for the prevention of disease:

1. The notification and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.
2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.
3. The establishment of special hospitals for the prevention of tuberculosis.
4. The organization of societies for the prevention of tuberculosis.
5. Government inspection of dairies and slaughter-houses, and the extermination of tuberculosis among dairy cattle.
6. Appropriate legislation against spitting into places where the sputum is liable to infect others, and against the sale or donation of objects which have been in use by consumptives, unless they have been thoroughly disinfected.
7. Compulsory disinfection of hotel rooms, sleeping-car berths, and steamer cabins which have been occupied by consumptives, before other persons are allowed to occupy them.

The reports and recommendations of the Committee were adopted.

Massachusetts ought not to be far in the rear, and to give credit where it is due, I believe at least one of the local inspectors in Massachusetts has advised the Health officers of his locality to place tuberculosis on the list of contagious diseases, (I refer to a report by Dr. Winchester of Lawrence, to the local Board of Health).

In Massachusetts the cattle commissioners are an independent commission, having no connection with the Board of Health, and so far there has been no adequate legislation sufficient to check the spread of tuberculosis among our dairy stock. The same applies, though in less degree, to the action taken by the State of New York, for it is not enough to isolate and destroy infected cattle, *such action alone does not strike at the root of the matter. Hitherto the influence exerted by the conditions and surroundings under which the animals are kept has been almost entirely overlooked.*

Seed always requires a proper soil before it will develop. The bacilli require a suitable culture media, and we know that tubercle bacillus is one of the most exacting in this respect.

It is not sufficient that the bacilli should be inhaled, we

know that all animal bodies in a healthy condition have a great disease-resisting power, and it requires more than the mere presence of the bacteria to cause the disease. In other words, the bacteria is only a small part of the disease. As a contributor to the *Medical Record* (September 2, 1893) truly says: "There are other factors equally as important in the causation of the malady, as the part played by the microbe."

In the report of the Congress for the Study of Tuberculosis held in Paris in 1891, it is said, "If there is one thing above all others that is learned from the many discussions upon this well-worn, but still obscure subject of tuberculosis, it is that the bacilli alone does not cause the disease. The host is obviously not the least important element."

We must all acknowledge that there is in the constitution of the individual before bacilliary infection takes place, something that determines the fact of infection, and that largely determines the course and character of the results of infection. Parasites thrive only under certain conditions. Remove the conditions which are favorable for their propagation, and they disappear. "You take away their lives when you take away the means by which they live," has been well said. In other words, build up the health and constitution of the animal body, increase the disease-resisting powers, and you are taking a long step in the right direction. On the other hand, pay no attention to the general health of the animal, allow its general health to run down, weaken its constitution by breeding young, and breeding continuously, force the milk supply, and continue milking while the cow is in calf, feed high and give little exercise, keep in a close, hot barn in unsanitary surroundings, and you produce an animal that is just in the right condition to contract disease, yet these are exactly the conditions usually found in the average dairy farm.

Breeders and farmers pay little or no attention to the general health and constitution of their dairy stock. They seem to consider excessive milking qualities to be the sole aim and purpose of breeding. I had a good illustration of this the other day. My

attention was called to a heifer 14 months old. It was strong and rugged for its age. The owner asked me what I thought of breeding her when she came in heat, a farmer standing nearby remarked that it was the best thing he could do. I asked him why. He said because she would become a better milker. That, I believe, is a fair sample of the way farmers look on the matter. *He would have her a big milker at whatever cost to her strength and constitution.*

Again, what is to be said about the practice of continuing to milk a cow while carrying a calf. Through use and want it has become the invariable practice, at the same time I believe it to be one of the most serious of the many serious conditions that tend to sap the strength and vitality of our dairy cattle.

Probably you are aware what the result would be, if a woman were to nurse a child while pregnant, yet not only is this invariably done in dairy cows, but the milking qualities are forced to the utmost limit, and if she gets a month's rest before calving, she is in luck. On top of this, inn-breeding is commonly practised, and a cow is expected to bear a calf with un-failing regularity year after year, and if unable to do so, she is thrown aside as worthless.

Nor is this all—all of you are familiar with the hot, foul air, reeking with the smell of the cattle, that will meet you when the barn door is opened in the morning. The cows in many cases are packed in, every crevice and opening through which the air may gain admittance is blocked up, and they are kept in these conditions during the entire winter, with little or no exercise. You have here just the conditions that are most suited for the development of the disease.

Introduce a consumptive cow into a herd kept in this way. The cow has a cough possibly, or more or less of a discharge. The discharge comes in contact with the woodwork. This dries up, particles fall off, and mix with the hay, and dust and chaff. The barn is close and stuffy, the animals close together, there is no fresh air to carry away the poison-laden atmosphere. They breathe the same air over and over again, *with their noses*

in the most dangerous place, close to the ground, where the dust and dirt accumulate. What wonder if the whole herd or a large percentage of them become diseased in a short space of time.

And it is not only in the ventilation. What about the manure heaps, what about the slime and filth so often heaped up in the cellar below, what about the water supply? The cattle often get their water supply from what is practically little better than a cesspool.

Are these animals living in healthy conditions? Is it common sense to expect them to be strong and healthy, and free from disease.

To counteract this state of affairs, the Cattle Commissioners have been in the habit of taking *only* the pronounced cases and destroying them, and leaving animals that are predisposed to disease, animals that are weak constitutionally, not to mention those infected animals that they have failed to discover, and leaving them right in the midst of infected surroundings. The result is what one would naturally expect: little or no progress has been made in eradicating the disease, and if no change is made in the system at present in use, their work might be continued indefinitely without any practical result.

Instead of being in the hands of an independent Board, the supervision of the matter should be in the hands of the State Board of Health. Of course it is not possible for any great change to be made at a jump, but it is possible for a system of education to be begun at once, always keeping in view the ultimate adoption of a more perfect system of state supervision and inspection of Dairy Farms.

1. The whole matter should be transferred to the State Board of Health. The Board of Agriculture shall be expected to co-operate by spreading information on the subject among farmers and stock-raisers by means of lectures and pamphlets, as has been done in Pennsylvania and other states.

2. The State should be divided into districts. Each district to be in the charge of a competent veterinary surgeon as Inspector, who shall be responsible only to the Chief State Inspector.

3. One or more quarantine stations shall be established in each district, so that suspicious cases, or cases to be kept in quarantine may be sent there to be kept or killed, as is thought fit.

4. Owners of cattle killed shall be compensated by the State.
5. No person shall be allowed to sell milk without a license, the license to be granted by the State, after a satisfactory examination of the dairy and herd by the Inspector in the district.

The Inspector's duties shall embrace the following points :

1. He shall make perodical visits to all the licensed dairies in his district.
2. He shall condemn all tuberculosis cattle, suspicious cases shall be tested with tuberculine, and if is thought proper, it shall be sent to the quarantine station of the district, to be killed or otherwise as thought fit. The owner may have the privilege of keeping suspicious cases, under certain restrictions, on his premises for the purpose of turning into beef, if he so desires. After the removal of a tuberculosis animal, the Inspector shall see that the box or stall is thoroughly disinfected.
3. He shall condemn as unfit for dairy purposes all animals in an untrifty or sickly condition.
4. He shall not grant licenses to dairies in a dirty or unsanitary condition. In this connection the following points should be noticed:
 - (a) The barns must have a minimum of at least 600 cubic feet for each animal, no height of over 15 feet to be included. (The cubic capacity to be greater if thought advisable).
 - (b) They must have sufficient ventilation, to the reasonable satisfaction of the Inspector.
 - (c) The barn must be light to the reasonable satisfaction of the Inspector.
 - (d) The floor of the barn must be tight so that the urine will not soak through and drip into the ground or into the cellar below.
 - (e) The manure shall not be allowed to lie in piles against the barn walls, but shall be a suitable distance from the farm buildings.
 - (f) The water shall be of good quality, and shall not be taken from wells in or near the barnyard, nor from wells so situated as to allow the surface drainage to flow into it

Of course, as before remarked, it would be impossible to enforce all these requirements throughout the State at short notice, but the spirit of the instructions could be carried out, and gradual changes made, the Boards of Health and the Inspectors always keeping in view the ultimate end to be attained.

In other states the Boards of Health have gone to work in a business-like way, in attempting to control tuberculosis in the human being, why cannot the State of Massachusetts do the same with her dairy cattle? I believe the time has come when something definite should be done. No better time could be chosen than the present, and with this end in view, I move "That a committee be appointed to report to this Association on the matter, so that the Association will be able to communi-

cate with the State Medical Society, and the State Board of Health, inviting thair presence and assistance in discussing intelligently the best method of controlling and checking the spread of Bovine Tuberculosis."

ACTINOMYCOSIS.

By DR. G. F. STARKEY, Boon, Iowa.

A Paper Read before the Iowa State Veterinary Association.

A careful study of the literature on this subject shows that until the latter half of the present century the true cause had not been discovered; and not until 1877 was the germ discovered by Rivolta, in 1863, recognized as constantly present, when Bollinger pointed out this fact which was further supplemented by the discovery of Israel, in 1878, of a germ which proved to be the same in similar diseased growths in man.

These facts were not at once accepted by the Veterinary profession as will be seen by referring to *William's Prin. and Prac. of Vet. Sur.*, edition 1879, page 199; *J. W. Hill's Bovine Med. and Sur.*, 1882, page 138; *Clatter's Cattle Doctor*, page 62; and *Steel's Diseases of the Ox*, page 483.

These authors describe the disease under the name of Osteosarcoma, Spina Ventosa, Fibro-plastic degeneration of the bone or a disease due to injury or a tubercular diathesis of the system.

Very little original investigation into the cause and nature of this disease had been made until within the last twenty-five years, and much of this has been prosecuted in vain, owing to a misconception of the cause by many of the earlier investigators.

Thirty years ago Rivolta discovered Actinomyces, and fourteen years later Bollinger recognized the fact that they were constantly present in, and the cause of the disease now known as Actinomycosis.

This disease affects cattle, horses and many other smaller animals including man. From the year 1878, when it was shown by Ponfic that Actinomycosis in man and the lower ani-

mals was due to one and the same cause, investigation assumed a more scientific basis. The germ has not yet been definitely classified. Many observers place it with the Fungi, while some others regard it as one of the higher Bacteria.

Since the discovery of the cause, many investigators have been busy studying the nature of the disease in the hope of finding a radical cure.

Such a remedy, should one be discovered, has besides a sanitary interest, a financial consideration of no mean aspect, for thousands of cattle in this country are greatly depreciated by its constantly increasing prevalence.

In nature this disease resembles some other, inasmuch as it is produced by the inoculation of living germs into the animal body. In different animals it assumes different forms; but I will confine my article to its appearance and propagation in the bovine species, and its relation in such to the public health.

Study and observation convince me that this disease is infectious by inoculation as pointed out by Professor Crookshank, and demonstrated by Dr. F. B. McCall and myself in separate experiments during the summer just past. In our experimental propagation of this disease the material was secured by myself and after a microscopical examination to confirm the presence of *Actinomyces*, small pieces of the tumor were introduced beneath the skin in some cases while in others the contained plastic material was used for that purpose.

Positive results were obtained by both methods even after the material so used had been exposed for two days before being used for experimental purposes. The period of latency was from a few weeks to a few months; and the failures to produce the disease by this method were none.

The season was warm, being from May to September. What results might be obtained during different atmospheric conditions, I am unable to state.

Observation in several hundred cases in central Iowa show that under the influence prevailing in this district, the actinomycotic new formations appear most frequently in the sali-

vary glands, and the subcutaneous connective tissue around the angles of the inferior maxilla, upon its sides, in the inter-space between the rami and upon the neck below the base of the ear; while the lymphatic glands and subcutaneous connective tissue of the flanks, legs, sides, and shoulders were next the most frequent seat of the disease; and lastly the tongue and lungs. I never have witnessed a case in which the abdominal organs were affected; but find such recorded by Drs. Salmon and Smith on page 410 of the *Special Report on Diseases of Cattle and Cattle Feeding* issued by the Bureau of Animal Industry, 1892.

From the authorities of other countries we learn that the seat of the disease is not the same in all districts. In Germany, for instance, the tongue and pharynx are the seat of these actinomycotic new formations. In England as in some parts of this country where the conditions are very similar, we find them about equally divided between the internal and external structures about the head; while in some parts of this country where the conditions are different we find that the pathological growths predominate in the external forms. To illustrate, on the northern ranges in Idaho, Wyoming, Montana, and North Dakota there are but few, and those principally of the osseous type. The inferior maxillæ being most frequently the seat of the transforming growth. In Illinois, Iowa, Minnesota, Missouri, eastern Kansas and Nebraska and southeastern South Dakota the disease is principally located in the superficial gland structure and subcutaneous connective tissues. In Germany and parts of England and America the tongue is most frequently affected. The reason for this variation I think has been largely overlooked. In this country many stock men attribute the trouble to dehorning, others to stagnant water, while still another class admit that they know little of it except that of late years the cases seem to be more numerous.

In Europe Veterinarians recognize the true cause and generally attribute its source to forage grown on lands that are frequently flooded, and especially to the use of straw for forage,

when it has been grown on such lands—barley straw being considered most dangerous.

Among Veterinarians in America there seems to be no generally recognized opinion concerning the susceptibility from the use of the various kinds of forage as food; but almost all agree that it is due to *Actinomyces* and then seem to overlook its method of propagation other than to admit that it is by inoculation. This opinion is verified by the attempts of many excellent men to propagate the disease by injecting small quantities of the morbid material containing the fungus, directly into the venous system, or into the peritoneal cavity. There are some facts that must be potent to any critical observer.

First among these is its increasing frequency in the Mississippi valley.

Second, that it affects only those parts subject to frequent traumatism.

It is a well-known fact that the germ will not develop upon either the unabraded surface of the skin or mucous membrane; but that an opening through which it may enter the subcutaneous tissue is absolutely necessary.

That this opening is made by accidental injury there can be no doubt. You will at once agree when your attention is called to the fact that in the Mississippi basin where the greater number of cases affecting the subcutaneous structures are found, the cattle are kept in pastures, yards, and pens that are fenced with barbed wire.

Through these fences the cattle poke their heads and are often slightly wounded when withdrawing them. This is the case where the wires are so close together that the animal is obliged to turn its head sideways in order to accomplish its purpose—to eat forage growing on the opposite side of the fence.

In this case very ample opportunity is offered for puncture of the parotid and other gland structures. In breaking or crowding through these fences the skin upon the legs, flanks, shoulders, etc. is punctured in the same way. While a herd of

cattle are being wounded in this manner they continually feed and roam over the very objects that afford a resting place for the germ and occasionally one or more are inoculated and the fungus so introduced develops oftentimes into a tumor. This may not at first seem plausible, but when you stop to reflect and consider that this disease has increased in the subcutaneous forms with the increased use of barbed wire for fencing, and has not so increased where wire was not used, you will recall how often you have seen animals so injure themselves in the very places where these tumors most frequently exist, and how readily the fungus which must be present in large numbers on the forage plants might be brought in contact with the subcutaneous tissue.

On the western ranges where wire is less in use the forms seen are principally those affecting internal structures such as may be occasionally punctured by some sharp object, as a stone, that may be chewed by the animals, or that form which affects the bones themselves and has the opening for inoculation through the alveoli of a carious tooth. These cases however are quite rare. The lingual and pharyngeal type of the disease is most common where cattle are kept stabled and fed on sloppy and other food in which by chance there is more danger of sharp and pointed objects, being secreted and making openings through which the germs contained on the rough forage may enter. In the lungs the diseased growth is probably caused by particles of irritating material to which germs adhere, being inhaled and setting up centers of inflammation and suppuration, which affords the germs a suitable place for development. The germs having thus entered the openings accidentally made meet with some resistance to their development. The leucocytes attempt to destroy them and if they chance to be located in any muscle having a good blood supply and not too great a supply of conductive tissue where a lodgment may be effected until the growth is commenced, they are completely destroyed.

(To be Continued.)

REVIEW OF MY WORK WITH TUBERCULIN.

By DR. J. FAUST, V.S., Poughkeepsie, N. Y.

Mr. — has a fine herd of Guernsey cattle, kept in good condition.

These cattle were examined three or four times a year by a veterinarian, who occasionally destroyed one. Mr. —, not being satisfied with this mode of operation, employed another veterinarian to examine his cattle with the first veterinary. This examination was not satisfactory, and a few days after I was called, and requested to examine the entire herd.

I found three cases of suspected tuberculosis which, on post-mortem, showed marked lesions of tuberculosis.

I was then requested to use tuberculin on the herd, with the following result:

No.	BEFORE INJECTION.		AFTER INJECTION.							
	5 P M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M		
1	101.6	103.2	102.8	106	106.4	106	105.5	105	General tuberculosis.	
2	101.2	102.5	102	104.5	106.6	106.5	105.5	105	Awaiting slaughter.	
3	101.5	102.2	101.5	102.5	102.6	102.5	105.5	103	" "	
4	103	103	103.2	106.2	107.2	106.5	107	105	Mediastinal, lungs affected.	
5	101	101.6	100.6	103.8	105.2	104.5	104	104	Retropharyngeal, mediastinal, lungs and liver affected.	
6	100	101.5	100.5	101	102.2	102.2	103	102	To be retested.	
7	101.2	100.6	100.6	101	101.6	101	101	101	Not destroyed.	
8	100.5	102.2	102.5	107	106	104.6	105	105	Retropharyngeal, mediastinal, lungs affected.	
9	101.5	111	103.2	106	106.5	105.2	105	104.5	Mediastinal, lungs affected.	
10	101.5	101.5	101.5	101.6	103	102.6	104	103	To be retested.	
11	100.6	102	103.2	105.8	106.2	105	105	105	Retropharyngeal, mediastinal and lungs affected.	
12	100.5	102	101.6	105.2	106.5	106	106	105	Mediastinal, lungs and liver affected.	
13	101.2	102	102.2	103.5	106	105.2	105.5	105	Retropharyngeal, mediastinal and lungs affected.	
14	102.2	102	102.5	102.2	103.2	103	103	103	To be retested.	
15	102.5	102.5	102	101.5	103.2	102	103	102	" "	
16	102	102	101.8	101.6	103.4	102.5	102	102	" "	
17	101	102.2	101	101.5	101.6	101.6	102	101.6	Not destroyed.	
18	101.6	102	106	107.5	106	105	104.5	104	Retropharyngeal, mediastinal and lungs affected.	
19	101.2	100	102.5	105.8	106.2	106	105	105	Both lungs affected.	
20	101.2	102	102	102.2	103	102.5	103	102.5	To be retested.	
21	101	100	101	100.5	103	105	105	102	Awaiting slaughter.	
22	101.5	99.5	101.5	101.5	102	102	101	101	Not destroyed.	
23	104	103	106.5	106.6	106.5	106.8	106	105.5	Mediastinal, lungs and liver affected.	
24	101.5	102	102	102	101.5	101	101.2	101	Not destroyed.	
25	100.2	102.5	102	102.2	102	101.5	101	101	" "	
26	100.6	103	103	106.5	105.5	103	104.2	105.5	General tuberculosis bad.	
27	102.2	101	103	103.2	103	102	101.5	101	To be retested.	
28	101	101	100	102.5	103	102.2	104.5	102.2	" "	
29	102	101.5	101	101.4	101.5	102	102	101.5	Not destroyed.	
30	101.5	102	102.5	102.2	101	102	102	101	" "	
31	100.6	102	102	102	102.2	101.5	101.5	101.4	" "	
32	100.5	101.5	100	102	101.5	100.5	101	101.3	" "	
33	101.2	108	103	105.5	106.2	104	104.2	103.5	Mediastinal and lungs affected.	

No.	BEFORE INJECTION.		AFTER INJECTION.						
	5 P M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M	
34	101.5	101	102	102	102	101.5	101	101	Not destroyed.
35	101.5	101.5	101	102	102	102	102	102	" "
36	101	102	101.5	102.5	105.5	105.5	104.5	104	Retropharyngeal and mediastinal affected
37	101.8	101	100.5	102.2	101	102.5	102	102.5	Not destroyed.
38	101.5	101	102	103	102.5	101.2	102.4	102	" "
39	101	101.5	103	106	107	105.4	105	103	Mediastinal and lungs affected.
40	101.2	102.2	102	103	102.2	101	103	102	Not destroyed.
41	101	101	102	103.2	105.4	104.4	106	104.5	Mediastinal, mesenteries, spleen affected.
42	102	102	102.5	104.2	106.5	106	106.5	104	Retropharyngeal, lungs affected.
43	101	101	102.5	104.5	107	105	106	104.5	General tuberculosis.
44	101	101	104	106.5	108	106	106.4	104	" "

Mr. — has a herd of Guernsey, Holstein and Ayrshires kept in very good condition.

History.—This herd has had tuberculosis for a number of years; every year one or two would die or be killed, and on post-mortem show marked lesions of tuberculosis. I was requested to examine this herd, and found five suspicious cases which, on post-mortem, showed advanced lesions of tuberculosis.

Mr. — then requested me to test his cattle with tuberculin, with the following result:

No.	BEFORE INJECTION.		AFTER INJECTION.						
	5 A M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M	
1	101	101	104.5	105.5	106.2	105.5	104.5	104	Mediastinal and lungs affected.
2	102	101.5	102	100.6	103.2	103.2	103	103	Not destroyed.
3	101	102	102.1	100.8	106	106	106.2	105	" " "
4	102	103.3	104	104.8	104.5	105.2	105	105	" " "
5	102	100.5	102	103.5	106	105.5	105	104	" " "
6	101.5	101.3	102.6	103	103.5	102.6	102	102	Not destroyed.
7	102	102	102	101.3	101.2	101.2	101	101	" "
8	101.5	100.6	102	100.8	101.5	101.5	100	100.5	" "
9	101.5	100.6	102	103	106.6	106.5	106	105	Mediastinal and lungs affected.
10	102	101	102	100	103	103.3	103	103	Not destroyed.
11	101	101	102.3	101.5	105	104.5	104	103	Mediastinal affected.
12	100	101	102.5	105	106	105.2	105	104	" " "
13	101	101	102.5	101	105.5	106.5	106	105	" " and lungs affected.
14	102	101.5	103	100.6	100.5	100.5	100	100.5	Not destroyed.
15	102	102.5	102.5	102.5	103	103	102	102	" "
16	101	101	102	102	106	106.2	106	105	Mediastinal and lungs affected.
17	102	101.6	104.8	102.5	102.5	102	101.5	101	Not destroyed.
18	102.5	102	102.8	103	102.5	101.5	101	101	" "
19	101	101.5	103	102.6	102.5	102.2	102	102	" "
20	102	102	102	101.3	101.5	102	101.5	101	" "
21	101	101	103	106.8	104.5	103	103	103	Lungs affected.
22	102	101	101.5	101.8	100.8	101.5	101	101	Not destroyed.
23	102	101.5	102	102	101	101.5	101	101	" "
24	102	102	102	108.8	101.5	102	102	101.5	" "
25	101	101.6	103	103	102	103	102.5	102	" "

No.	BEFORE INJECTION.		AFTER INJECTION.							
	5 P M	10 P M	11 A M	7 A M	9 A M	11 A M	1 P M	3 P M		
26	102	102	105	107	106	105	105	104	Mediastinal and lungs affected.	
27	102	101.5	103	102.3	101.2	102	101.5	102	Not destroyed.	
28	102	101	103	104	104.5	103.5	103	102	Mediastinal and liver affected.	
29	101	101.5	102.3	102	101.5	101	100	101	Not destroyed.	
30	102	101.5	102	107	106.4	106	105.5	104.5	Both lungs affected.	
31	102	102	103.5	102.5	100	101.5	102	101	Not destroyed.	
32	99.5	102	103.5	103.5	100	101	101	101	" "	
33	101	102	103	103	100	100	100.3	100	" "	
34	101.5	101	102.5	102.5	100	102	102	102	" "	
35	100	101	103.5	102	100	101.5	101.5	101.3	" "	
36	101	101	101.5	103	102	101.5	101.5	101	" "	
37	101	102.5	103	102.5	100	101	101.5	101	" "	
38	100.5	102	102	102	100	102	102	102	" "	
39	102	102	101	102.5	100	101	101.5	101	" "	
40	101	102	103	102.6	101	101.5	102	102	" "	
41	99.5	101	102	103.3	100.5	101.3	101	101	" "	
42	100	101	101.5	103.3	101	101	101	101	" "	
43	99	101.5	102	103	100	101	101	101	" "	
44	101	101.3	102	103.3	100	102	102	101.5	" "	
45	100	101	100.5	101.5	102.5	103	104	103.5	Mediastinal, lungs and liver affected.	
46	100.5	102	101.5	102.5	101	102	101.5	101	Not destroyed.	
47	101	101	101.5	103.3	102	101	102.6	102	" "	
48	101	100.2	106.5	106	103.5	102	101.3	100.5	Retropharyngeal, mediastinal and udder affected.	
49	102	102	103	104	102	102	101.5	102	Not destroyed.	
50	101	101	102	103	105.6	104	106	104	Mediastinal and lungs affected.	
51	101	100	101	103	102	102	101	...	Not destroyed.	
52	101	102	103	104.5	103	102	102	102	Liver very badly affected.	

Remarks.—Mr. — employed a Dr. F. Martin, D.V.S., of Fishkill, to witness post-mortems. Every cow that reacted proved to be tuberculous to the doctor's satisfaction.

Mr. — has a fine herd of grade cattle, kept in good sanitary condition.

History.—About five years ago, Mr. — bought 20 cows from a tuberculous herd; since that time he has been losing one or two a year. The last one of these 20 cows reacted to the test, and was killed and proved to be tuberculous. On physical examination five were killed and proved to be tuberculous.

Then, at the request of Mr. —, the remaining herd were tested with tuberculin, with the following result: .

No.	BEFORE INJECTION.		AFTER INJECTION.							
	5 P M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M		
1	102	101	100	101.3	101.5	101	101	101	Not destroyed.	
2	102.5	101.6	101	105	106	107	107	106	Mediastinal and lungs affected.	
3	102	100	101.5	102	102.3	104	104.5	104.5	Mediastinal, lungs and liver affected.	
4	101.6	102	101.5	101.5	102	103	100.2	101	Not destroyed.	
5	101.8	100	101	101.8	101.6	100	103.2	105	Mediastinal, lungs and liver affected.	
6	101.8	101.5	101	101.5	101	100	100	101	Not destroyed.	
7	102	102	102	101.5	102	102.2	101	101	" "	
8	101	100	100	102	103.3	105	106	105	Mediastinal and liver affected.	
9	102	101	101	102	101.8	101.5	100.5	101	Not destroyed.	
10	101.5	100.5	100.6	103	10.72	106.5	106	105.5	Mediastinal and lungs affected.	
11	102	101.3	101.5	101	101.5	101	101	101	Not destroyed.	
12	102	101	100	101.5	101.6	101.8	103	104	Mediastinal and liver affected.	
13	102	100.6	101.3	101.8	103.3	104.5	104.5	104.7	Mediastinal and lungs affected.	
14	101.5	101.3	100.5	102	102	102	102	102	Not destroyed.	
15	102	100	101	101.5	101.5	101.8	101	101	" "	
16	101.5	99.8	100	102.3	102	102	101.5	101.2	" "	
17	102	101.8	101.3	102	102	100	100	101	" "	
18	101.5	99	100	102	102	100	99	100	" "	
19	102	101	101	101.5	102.5	103.5	106	106.1	Mediastinal and lungs affected.	
20	102.8	101	100.3	101	102	101.5	100	101	Not destroyed.	
21	101	100	100	101	101	99.5	99	100	" "	
22	101	99	100	101.5	102.5	102.3	103	104	Mediastinal, lungs and liver affected.	
23	102	101	102	101	101.8	101.5	101.5	101.6	Not destroyed.	
24	101	100	101	103.1	103.3	103.5	104	104.3	General tuberculosis.	
25	101.5	100	102	101.5	101	101	101	101	Not destroyed.	
26	102	101	101.3	101.8	102	102	101	101.5	" "	
27	101.5	101	101.9	102	103	103	102.5	103	Mediastinal affected.	
28	101.8	101	101.3	100	102.3	103.5	105.3	106	General tuberculosis.	
29	101.1	101.5	101.8	101	101.3	100.5	102.2	102.2	Not destroyed.	
30	101.8	100	101	101.5	103	103.8	101.5	99	" "	
31	101	101	100	101.8	103	102.8	101	101	" "	
32	101	100	101.3	101.8	105.3	104	104.5	105	Mediastinal and lungs affected.	
33	102	101.3	101	103.8	105.5	105.3	105	105.7	Mediastinal, lungs and liver affected.	
34	102	101	100	103.8	102	106.5	106	106	General tuberculosis.	
35	101	99.3	102.8	101	105.5	106	105.5	105	" "	
36	101.5	100	100	101	102	101	101	101.1	Not destroyed.	
37	102	100.8	100.5	101.8	101.5	101	100	101	" "	
38	101.8	101.3	101	102.3	101	101	101	101.5	" "	
39	101.5	101	102	102	101.5	100.5	101	101	" "	
40	101	102	101.2	100	100.5	100	100	100.5	" "	
41	102	101.3	100	102	101.3	102.5	104	104	Mediastinal and lungs affected.	
42	102.3	101	101.5	102	101.5	101.5	101	101	Not destroyed.	
43	102	101.5	101.5	101.5	102	102	101.2	101.5	" "	
44	102	101.5	101	102	102	102	102.3	102.5	" "	
45	102.5	101.3	101	100.5	103	105	105	105	Mediastinal affected.	
46	100	101	100.5	101	102	102.5	102.2	103.5	Not destroyed.	
47	101	101	101	102	101	102.8	102	103	" "	
48	102	101.3	102	102.5	105	106.5	106	105	Mediastinal and lungs affected.	
49	101	102	102.5	103	102.5	102	103.2	103.5	Not destroyed.	
50	101.3	101.5	101	101	101	101.3	103	103	" "	
51	101	102	101	102	102	100	102	102	" "	
52	101.8	100.5	102	102	102.5	101.5	102	102	" "	
53	102	102.6	101.5	101.5	102.3	103.6	104.5	105	Retropharyngeal, mediastinal and lungs affected.	
54	101.5	101.5	101	102	102	101.5	100.5	101	" "	
55	101.8	101	101	101	102	103	104.2	104.2	Retropharyngeal, mediastinal affected.	
56	102	100	101	100.5	102.8	105	105	105.5	Mediastinal and lungs affected.	
57	101	101	101	100.5	101	102.5	105	105	Retropharyngeal, mediastinal and lungs affected.	

Messrs. Sears & Howell, of Orange Co., have a fine herd of Ayrshire cattle.

I was sent by State Board of Health to make a scientific test and examination of this herd.

The herd had been examined by three veterinarians, and passed as free from tuberculosis.

The owner not being satisfied with their decision, called Dr. Bachman, who informed them that tuberculosis existed in their herd.

The owner then applied to State Board of Health for an inspector.

The following is the report of test on these cattle:

No.	BEFORE INJECTION.		AFTER INJECTION.							
	5 P M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M		
1	101.2	101.2	102.5	102	102.5	105	101.7	101.7	Pericardium, thoracic side, mesenteries, omentum, liver affected.	
2	102.2	103	103.5	102	101.7	102	101.5	101	Not destroyed.	
3	101.5	101.5	102	102	103.5	105	106	106	Mesenteries, lungs, liver affected.	
4	101.2	100.7	101.2	101.7	102	101.5	101.5	101.5	Killed for test and no lesions found in any portion of the body.	
5	101.7	101.2	101	105.7	106	105.7	104.5	104.5	General tuberculosis.	
6	101.5	101.5	101	102	104.7	104	102.5	101.7	" "	
7	104.5	106.5	103.2	103	103.5	103.2	102	103	Pneumonia.	
8	101.5	101.7	102.7	102.2	105	102.5	102.2	101.7	General tuberculosis.	
9	101	100.2	101.7	103.7	104.5	104.7	103.7	103.5	" "	
10	102	103.2	106.7	106.5	106.2	104.7	104.5	103	Mediastinal, mesenteries, lungs affected.	
11	105.5	105.2	104	104	104	103.2	102.7	103	Mesenteries affected.	
12	104	103.5	102	102.5	102.7	102.5	102	102.2	Not destroyed.	
13	103	103.5	104	106.5	105.7	104	103.2	103	Mediastinal, lungs, spleen affected.	
14	103	102	106.5	106.5	106	106	106	105.7	General tuberculosis.	
15	101.7	101.5	102	101.7	101.5	101.7	101.2	101.2	Not destroyed.	
16	102	101.5	101.5	106	106	105.7	107	106	Mediastinal, lungs and liver affected.	
17	102	101.2	103.5	105.7	104.7	104.7	104.7	102.5	Mediastinal, thoracic side, liver affected.	
18	102.5	101.2	105.5	106.5	106.7	105.5	104.7	103.5	" " " and lungs "	
19	101	101.2	106.2	106.7	106	105.7	105	105.5	Thoracic side, lung affected.	
20	101	102	104.7	106	106	105.7	104	104	Lungs, liver and spleen affected.	
21	101.2	101.2	103.7	105.5	106.2	105.5	104.7	104	Cardiac, mesenteries, liver affected.	
22	100	100	100.5	102	104.5	104	103.7	103	Pericardium, lungs, liver affected.	
23	101.5	101.5	101.2	105	105	104.2	104	103	Mediastinal, lungs and liver affected.	
24	101.5	101.2	102.5	103.7	103.7	103.5	104.7	102.7	Thoracic side, lungs and liver affected.	
25	100.7	101.5	106	107.2	106.2	105.2	104.7	103.7	" " " and liver affected.	
26	100.7	101.5	101.7	102	102.7	104	103.7	102	General Tuberculosis.	
27	103	103	103.5	107	106.2	105.2	103.5	103	" "	
28	100.5	102	101.1	101.5	101.7	101.2	101.5	101	Not destroyed.	
29	101	101	101	102	102	103.5	103.5	101.5	Thoracic side mesenteries, lungs affected.	
30	102	101.2	100.7	102.5	102.5	102	102.5	102.5	Not destroyed.	
31	103.2	102	104.7	106	105	105.7	104.2	104.5	Mediastinal, thoracic side, mesenteries and lungs affected.	
32	101.5	101	102	103.5	105.2	105	104.2	103.5	General tuberculosis.	
33	100.7	100.5	101	101.7	101.2	101.2	101.7	101.5	Not destroyed.	
34	101.7	101	101.2	102	102	102	101.5	101.7	" "	
35	102	101.2	104.2	105.2	105.5	104	102.7	101.7	General tuberculosis.	
36	102	102.5	100.5	101	100	101.5	101	100.5	Not destroyed.	
37	101.7	101.2	101.7	101.5	100.5	100.5	101.7	101.5	" "	
38	101.5	102	101.7	101.5	104.2	105	104.5	104	Mediastinal, lungs affected.	
39	101.5	101.5	100.7	101	101.2	101.2	101.5	101.5	Not destroyed.	
40	101.5	102.7	101.7	103.5	104	105.7	105	104.5	General tuberculosis.	
41	101.5	101.5	100	101.5	104	105	105	105	Mediastinal, mesenteries, liver affected.	
42	101.2	101.5	101.7	104	105	103	105	105	Mediastinal, lungs, liver affected.	
43	101.7	101.5	103	106	105.7	106	105.7	105.2	Mediastinal, thoracic side, omentum affected.	
44	101.5	101.5	101.7	103.5	107	105.5	105.5	105	Mediastinal, mesenteries, lungs, liver affected	
45	101	102	101.2	101.5	101.2	102.7	102	101.7	Not destroyed.	
46	101.2	101	101	103	107	106	106	105	Mediastinal, mesenteries, omentum affected	

No.	BEFORE INJECTION.		AFTER INJECTION.							
	5 P M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M		
47	101	101.7	101	102	103	105.5	104.5	104	Mediastinal, thoracic side, lungs affected.	
48	101.2	101	100.7	100.7	101.5	99.7	101	101	Not destroyed.	
49	101.5	101.5	103	104.7	105	105.2	104	103.5	Mediastinal, thoracic side, lungs affected.	
50	102	102	101	101	101.2	101	101.2	101	Not destroyed.	
51	102	101.7	102.7	104	105.5	106.7	105.5	105	Mediastinal, thoracic side, omentum, liver affected.	
52	101.5	102.7	102.2	102	103	103	103.7	103.2	Not destroyed.	
53	102	102	100.7	101.2	101.7	101.7	101.2	101.2	" "	
54	101.7	102.2	101	101	102.7	102	102.7	102	" "	
55	102.2	103.7	106	106.5	105	105	105	105	General tuberculosis.	
56	101	103.2	100.2	103.5	105	105.5	105	105	" "	
57	102.5	103	100.5	102.2	104.2	105.2	104	103.2	Thoracic side, omentum, lungs affected.	
58	101.2	101.7	101	103.2	100.2	101.2	101.5	101.2	Not destroyed.	
59	102	104	101.2	101	101.2	101	101.5	101.7	Lobular pneumonia.	
60	103.2	104	102.5	103	101	101.7	101	101.5	" "	
61	102.5	104	102.5	101.7	100	101	100.5	101	" "	
62	102	102.7	103.7	102.7	102.5	100.7	100.7	101	Retropharyngeal affected.	
63	102.5	102	104	102	102	102.2	102	102.2	" mediastinal, lungs affected	
64	102	103.2	101	104.7	105.2	105	105	105	General tuberculosis.	
65	101.5	101.7	106	102.2	101.2	101.5	101	101.5	" "	
66	101.7	101.7	101.2	106	105	105.5	105	105	Lungs and liver affected.	

Remarks.—The post-mortems were held in the presence of Drs. Dubois & Son. Dr. Bachman and a large number of taxpayers were well satisfied with the action of tuberculin, and expressed a wish that tuberculosis be stamped out of this state.

Hon. Levi P. Morton has the finest herd of Guernsey cattle I ever saw; they were all in what herdsmen call "show condition."

I was requested by Mr. Cottrell to examine the herd. On physical examination I found three suspicious cases. I tested these three with tuberculin; one reacted and was killed. Post-mortem showed lesions of tuberculosis.

I was then requested to test the whole herd, with the following report:

No.	BEFORE INJECTION.		AFTER INJECTION.							
	5 P M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M		
1	102.6	103	102.4	105.5	105.5	104.5	105.4	104.8	Mediastinal, lungs and liver affected.	
2	102	102	103	105	106.2	106.3	106.4	106	Thoracic, lungs and spleen affected.	
3	102.7	102	101.8	101.6	102	101	101	102	Not destroyed.	
4	102.4	102.8	102	105.6	106	106.6	105.8	106.2	Mediastinal, lungs, liver affected.	
5	102	102.6	102.2	102	101.8	101.6	102	101.5	Not destroyed.	
6	102.2	102.6	102.2	102.4	101.8	101.4	101.6	101.8	" "	
7	102.3	102.8	102.8	101.1	102.5	101.8	102	101.6	" "	

No.	BEFORE INJECTION.		AFTER INJECTION.							
	5 P M	10 P M	5 A M	7 A M	9 A M	11 A M	1 P M	3 P M		
8	102	102.2	101.7	101.2	102.6	102	102.6	102	Not destroyed.	
9	102.4	103	102	105.5	107	107.8	101.6	106.2	Mediastinal, thoracic side, and lungs af- fected.	
10	103	103	103	103.8	105.6	105	105.2	105	Mediastinal, cardiac, lungs, liver affected.	
11	102.2	102.4	101.4	101.4	101	102	102.6	103.5	5 P M } Mediastinal, lungs, liver, spleen af- 105.3 } fected.	
12	101.8	101.4	101.4	102.6	102.5	105	106.2	106.5	Mediastinal, lungs affected.	
13	102	102.8	101.8	102	101.8	101.8	103.6	101.2	Not destroyed.	
14	102.8	102	102.2	101.8	101.9	102.8	102.2	101.8	" "	
15	102.2	102.4	101.8	101.8	100.5	102	101.8	102.7	" "	
16	102.5	102.2	102	102.4	101.5	101.6	102.9	101.2	" "	
17	102.8	103	103	104	103.5	105.2	105.4	106	Thoracic side, lungs and liver, affected.	
18	102.2	102.8	102.8	102.4	102.6	102.4	102.3	101.9	Not destroyed.	
19	102.6	102.8	101	105.1	106.8	106	106.2	105.8	Lungs, liver, spleen affected.	
20	102.4	102.6	102.8	101.4	102	102.5	102.4	102	Not destroyed.	
21	102	103	101.8	101.8	102	102.4	102.5	101.8	" "	
22	101	102	101.6	101.8	100.5	101.2	101	101	" "	
23	102.8	102.6	101.8	102.1	102.2	105	102.2	102.4	" "	
24	103	103.8	102	102.4	101.5	102.2	102.2	101.8	" "	
25	102.4	101.6	101.4	104.5	105.8	105.7	105	105	Mediastinal and liver affected.	
26	101.6	101.8	102.4	101.6	101.6	101.3	101.9	102	Not destroyed.	
27	102	101.8	101.4	101.5	101.5	101.7	102.5	101.8	" "	
28	101.8	102	102	102.6	102.5	105.6	106.3	105.5	General tuberculosis.	
29	101.6	102	102.2	102	101.6	101.6	101.8	102	Not destroyed.	
30	102	101.8	101.8	101.5	102.2	103.8	106.8	105.6	Mediastinal and liver affected.	
31	101.6	102	101.8	101.3	101.6	101.2	101	101	Not destroyed.	
32	101.6	103	102	102.4	102	101.6	102.5	102	" "	
33	102	103	103	105	105.5	106	105.6	105	Mediastinal, omentum, lungs and liver affected.	
34	101.8	102	102	102	101.2	100.4	100.8	101.2	Not destroyed.	
35	101.6	102.2	101.8	102.1	101	100.8	102	101	" "	
36	101.4	102	102.5	102.5	101.8	101.5	101.1	101.8	" "	
37	102.1	101.4	101.8	101.8	102	100.8	101	100.8	" "	
38	101.6	101.5	101.3	101.5	101.6	100.8	101.6	101.5	" "	
39	103	102	101.8	101.9	101.8	101.4	101.6	102.4	" "	
40	102	101.9	101.5	102.5	106.2	106.4	105.4	104	Mediastinal, lungs affected.	
41	101.7	102	101.4	100.5	101.9	101.4	102.1	101.5	Not destroyed.	
42	101.6	101.2	100.5	100.4	101.6	101.9	101.8	101.4	" "	
43	102.1	102	101.8	102.5	104.2	106.2	106.8	105.8	Retropharyngeal, mediastinal, liver and spleen affected.	
44	101.2	101.4	100.8	102.4	101	101.9	101.5	101.5	Not destroyed.	
45	101.6	101.9	101.5	101.5	101.4	102.1	103	104.8	General tuberculosis.	
46	101.2	102	101.2	101.6	101	101.1	101.5	101.6	Not destroyed.	
47	101.7	101.6	101.4	101.2	101	101	102	101.5	" "	
48	102	101.5	101.5	101.5	101.8	102	102.1	104.2	5 P M } 105 } Mediastinal, liver affected.	
49	101.6	102.5	100.8	100.5	100	101	101.5	101.8	Not destroyed.	
50	101.5	100.8	104	106	106.5	106.5	106.5	105.2	Lungs affected.	
51	101.4	101.8	101	101	101.8	101.4	101.1	101.8	Killed for test but no lesions of tubercu- losis found.	
52	101.7	101.4	101.2	101.3	101	101.9	101.8	102	Not destroyed.	
53	101.1	102	101.2	101	101.4	101.4	101.7	100.2	" "	
54	101.4	101.6	101.2	100.2	100.6	101.3	101.4	101.6	" "	
55	102.3	102.6	102.5	101.8	100.6	101.6	102	101	" "	
56	102.7	102.1	102.5	102.8	101.8	101.5	101.8	101.8	" "	
57	102	101.5	102.6	101.9	101.5	102.1	102	101.7	" "	
58	101.8	102	102	101.8	101	102	101.5	101.5	" "	
59	101.5	101.3	101.9	101.5	101.5	101.4	101.8	101.5	" "	
60	102	102.5	102.4	101.8	101.8	101.9	101.9	102.2	" "	

Remarks.—There was one heifer which, on physical examination, showed marked symptoms of tuberculosis; so diagnosed by three veterinarians. This heifer was tested twice, but showed no reaction, and on post-mortem no lesions of tuberculosis were found.

There was a general doubt in the test of tuberculin in this herd on account of their fine condition.

The post-mortems were witnessed by Dr. Gardner, Veterinarian of Guernsey Cattle Club; Mr. Norris, Secretary of Guernsey Cattle Club; Mr. E. N. Howell, of Poughkeepsie; Mr. Eddie, of Saratoga; Dr. Heinie, of Kingston and Dr. Traver, of Rhinebeck.

I was assisted in these post-mortems by my son, Dr. Otto Faust.

This test was a great victory for tuberculin; every cow that reacted showed marked lesions of tuberculosis.

CASTRATION.

By W. E. B. MILLER, D. V. S.

A paper read before the Pennsylvania State Veterinary Medical Association.

(Continued from Page 91.)

Many operators claim to have operated on ridglings, and lead the owner to think so, when as a matter of fact, they have not operated on a ridgling at all, but simply upon what might be termed, *a close colt*, which any ordinary operator might have altered if he so desired. It was such as this class of animals that Dr. T. B. Rogers referred to in his paper read at the last meeting of this association, when he stated that he "solved the cypher and brought forth the little mouse, etc." He must have *found two ridglings* however, for he admits that he twice failed, "utterly failed, to accomplish his purpose, even though he explored the whole inguinal space," his hand must have been *like the "ham"* he wrote of, and he should have gotten some "*quack*" *from the mountains* to have finished the job for him. A ridgling is a much more difficult animal to castrate than a close colt, and the operator has to be possessed of a knowledge of the anatomy of the parts, or have had much practical experience in

the operation before he can successfully perform it. After properly securing the victim, open the scrotum as in ordinary operations; separate all the membranes until the opening to the inguinal canal is reached, then oil your hand with "olive oil," or saturate it with a solution of bi-chloride of mercury and oil, and insert the hand within the scrotum; press upward through the canal until the hand reaches the internal inguinal ring; if this ring is not occluded entirely, as it generally is, and is sufficiently large to admit one or two fingers of the hand, you may be enabled to perform the operation without further manipulation; if however, you cannot do this, you will have more difficulty in securing the coveted prize. It will not do to break down or rupture the circular muscle of the internal ring, as it endangers and nearly always is followed by the entrance of the small intestine within the inguinal space, and a subsequent hernia may result. You must, however, separate the muscular fibres longitudinally, as they diverge from the ring until you can insert your fingers within the abdominal cavity, then pass the fingers above and across the opening of the ring and grasp the gubernaculum testes, make gentle traction upon it and draw it up to the opening and into the inguinal canal, whence it can be readily brought down to the scrotal opening and removed. As soon as it is separated, allow the cord to retract into the canal to help fill up the space, and assist in preventing the intestines from coming into and down the canal. Cleanse the wound with a solution of bi-chloride of mercury or some other good antiseptic and let the patient rise. It is best to keep him quiet during the balance of the day on which you operate, after which he should have regular exercise.

I have thus passed over, in a general way, most of the different modes of operating, and the principal complications attending the same.

I will now say a word relative to the performance of the operation with the animal in an upright position. When I first learned to castrate stock, I followed the example and teaching of my father, who did all that kind of work in his vicinity for fun

and glory. I do not think he ever received a dollar in money for it, but he had lots of glory and some fun.

After I became old enough and had gathered considerable experience, I thought I knew enough to work for pay. At that time we used the English hobbles, and cast every animal we operated upon. My only knowledge was that of any other young country castrator, and I frequently encountered serious and fatal complications. Broken limbs, broken ribs, broken backs, spavins, cubs and bruises from throwing the animal and tying him down were of common occurrence, and I always felt (as I do yet) a sigh of relief pass over me when an animal I had thrown got up and stood upon his feet again. I was glad to learn anything new, and new methods or new kinds of instruments that I considered were superior to those I had employed, I always accepted and used thereafter. During the closing years of the late war I was located in the Southwest, and often in conversation with citizens or soldiers of that locality, I would talk "horse" with them, as the saying is. I frequently heard horsemen of that section talk of castrating stallions and colts without throwing them. I thought they were either crazy or fools, or thought everybody else was. I was too sceptical to think it possible for an animal to stand still and allow so painful an operation to be performed on him without kicking the operator's brains out, if he had any.

When, however, a little later, I saw an old man of nearly sixty years of age, in a little over a half day, apparently with ease, castrate between sixty and one hundred wild Texan ponies that had been raised upon a ranche and never handled (when it certainly would have required several days to have caught and cast the same number), and not one of the ponies, as far as I could see, made even an attempt to kick. I came to the conclusion I was the fool, and not the Texan. Not a rope or hobble of any kind was upon any of them.

The animals were corralled in large pens, and driven thence into close stocks and confined therein by sliding bars, over and under their necks, this of course held them, and it was impossi-

ble for them to escape punishment until they were released. The method employed was the actual cautery by most all of the operators in that section.

Both fillies and colts were run through the stocks, and all were branded with the owner's brand, and the *colts* castrated; all would then be turned out at large on the ranche with no after treatment, or perhaps scarcely a thought of them again until the next rounding up season came around.

When a stallion was in the stocks, the men with a branding iron would work on one side, while at the same time the castrator, with his cautery or clamps (whichever method he used) worked upon the other, and between the two the poor colt would not know which to try to get away from, even if it were possible.

Sometimes the animal would drop down and half hang himself before the operation was half completed, but the operators would go right on with their work just the same, with the animal hanging by the neck until the operation was completed. I remember of seeing one or two break their necks in struggling to get away, but as a rule they would all scamper off as fast as possible when the bars were loosened.

I often asked to be allowed to experiment, and soon found that I could easily perform the operation, and that it was just as readily done, or even more so, than any other, and I soon learned to like it better.

Later on in 1869, I returned to the East to New Jersey, and when I informed my father and others that I was castrating stallions standing, they regarded me very much in the same light that I did the Texan a few years before.

I told them the proof of the assertion was in demonstrating it as a fact, in order to do so, however, I was compelled to purchase (or agree to pay) for an old ten dollar stallion to become a martyr to science. No one who owned a good horse was willing to let me experiment on their stock (as they said).

The operation, with the animal standing, is, in my opinion,

the safest, most rapid, and the easiest performed of any, and can be accomplished under ordinary circumstances with less assistance than any other, and in less time.

My method is to place the stallion in a large box-stall, put a blind bridle on his head, covering his eyes so he can not see your movements. If you have plenty of help untie him and place a twist upon his nose; have a good sensible man, that does not expect to be killed at once, to take hold of the twist and stand a short distance from his head, placing his left hand against the side of the colt's neck, so as to keep him off from the man, then place the animal alongside of the partition, so that he can steady himself against it, and if possible have him backed up to a corner of the stall, so he will not be able to go backward, which he will always attempt to do when his testes are cut into and drawn out.

Now give your instruments to an assistant, if you have one along, if not, put them in your pocket so as to be easily accessible, and place your hand on the animal's side to attract his attention, and let him know that you are there. Then pass your hand rapidly down over his flank and around into the inguinal region, if he flinches or seems to be excited, keep your hand there and speak to him, patting him with the other hand, as soon as he is quiet grasp the testicles nearest you, between the thumb and forefinger, and take from your assistant your knife or bistoury, and make a full and long incision from forward, backward between the thumb and finger; repeat this part of the operation on the other testicle, then remove in the manner heretofore described, with the compress and ecraseur or wooden clamps.

I have already stated that I believed the operation standing to be the safest, and I *assert that it is* the most desirable of any or all methods, and Dr. Rogers opinion to the contrary.

It is good surgery and scientific.

It is safest, because you take no risk in injuring the animal by casting him. You do not have to use undue traction upon

the cord, and Dr. Rogers knows better when he states that "you do." On the contrary, the weight of the testicle itself will draw the cord sufficiently low, if it has any size whatever, after it is released from its envelopes or attachment. Where the horse is down this cannot be the case, for the very position he occupies is that of constraint (cramped up) and naturally forces him to draw up the testicle into the canal.

If however it were necessary to use traction, there would be less resistance against it on the part of the animal.

There is not half the danger of champignon or scirrhus cords, they are in fact impossible, unless the operator is careless and either purposely or accidentally cuts the cord too long or neglects to push it up into the wound, when it fails to retract. I cannot call to mind a single case in my own practice, when I exercised due care, or when there was no complication, where I have had scirrhus cord for several years past, while I am frequently called upon to operate on such cases that were castrated by others.

(I have operated on three within the last twelve months, that the owners informed me were castrated by the gentleman who with all of his "scientific knowledge," "good surgery," non "sleight of hand performances," "Rohard's methods," etc., seems to be no more successful than the "old quack," whose methods "we as professional gentlemen are not to follow.") In fact I can conceive of but one single objection, namely: hernia, that can be urged against the method, and that alone is slight in comparison to the benefits and advantages it possesses, when you take into consideration that but one colt out of every fifty, on an average, is ruptured, and that in most cases can be readily diagnosed, it would seem to be idle folly to take the risk and the labor required with the other forty-nine in casting them.

In his over-zealous desire to "elevate" the profession, the learned surgeon, scientist, and professional reformer seems to have forgotten that only a very few years ago he might have been found almost every day during the castrating season driving with an old castrator ("a noted quack,") from farm to farm

through a certain section of New Jersey, castrating colts at any price, from fifty cents up, as high as they could get, and I am not sure that he has raised the price any now, that he is doing nothing but "purely scientific professional work." He also seems to have forgotten the fact that he recently advertised and put on the market special medicines for pink-eye, etc., for which he ceased to be a member of at least one veterinary society. He appears also to be unmindful that during the Gloucester racing régime, he sought for and performed numerous "neurotomies," claiming as an inducement, that he did not throw the horse, thus avoiding a serious risk. If it is professional and scientific to perform a "neurotomy standing," is it any the less so to perform castration standing?

In the former you are in danger of cutting off either or both the vein or artery, as I saw the scientific Dr. himself do while operating on one standing last summer. In castration standing you could scarcely cut a vein or artery of any importance whatever if you tried to.

To sum up in a few words, I would again assert that castration standing is good surgery. It is purely scientific. It is strictly professional. It is easy of accomplishment. It is more safe than any other method. It is highly successful. It is no sleight-of-hand operation. It is preferred by horse owners who value the lives of their stock, above any other method, otherwise they would not send long distances and employ men who operate in that manner and pay extra for it, when they could secure the services of as equally competent men in their own immediate vicinity perhaps, but who would throw the horse or colt to perform the operation. A few words now as to the after treatment of your patient, and I will then pass on to the statistics. If possible keep your patient quiet for at least a day, after which give him regular, moderate exercise, this is very essential, as it helps to keep down the swelling. Give the animal soft food, bran mash, or vegetables, as often as necessary, or if possible, "grass him," or let him run where he can get it. Keep the wounds open and clean for the first week at least,

using any good antiseptic for injection into the wound. Creoline, bi-chloride of mercury, carbolic acid, etc., these are all good.

Treat the animal as you would any convalescent, and recovery is generally assured. It has been my custom to keep a record of all the colts and stallions I castrated. Owing to the loss of some of my books, the record from 1865 to 1868 is incomplete, also from 1878 to 1882 inclusive, but from 1868 to 1877 inclusive, and from 1883 to 1893 inclusive, I have a perfectly accurate and complete record in full. In order to show the rate of mortality following the operations, by the two principal methods employed, and the causes of death, I have compiled the following table from my record kept each year, embracing the lists of stallions and colts only, and does not therefore include any other class of animals whatever. For the first eight years, from 1868 to 1875 inclusive, I used the wooden clamps altogether, excepting in perhaps about a dozen cases, wherein the owner preferred the actual cautery. In 1876 I used the ecraseur in about one-third of the operations, the wooden clamp in the other two-thirds.

In 1877 the order was reversed, and the ecraseur was used in the majority of the cases. From this time on I used the ecraseur in connection with the House clamp.

In the period embraced in the first decade, I castrated eleven hundred and forty-four (1144) stallions, nearly all of which were operated on during the late spring and summer months; one or two exceptions are worthy of note however; the first occurred December 28th, 1871, when I operated on a thirteen-year-old thoroughbred stallion owned by Mr. Lemuel Buckalew, of Jamesburg, N. J. The day being the coldest of the year, and so cold that the blood from the wounds froze in icicles as the clamps were being put on the cords.

The second was on February 24th, 1873, when I castrated a five-year-old stallion for Mr. Richard Severns, of South River, N. J., when the same condition of affairs occurred, the thermometer registered four degrees below zero at 6 A.M.

In both cases the patients did well and made rapid recovery, refuting the old foggy notion that the operation could not be safely performed in cold weather.

The record of each year is as follows :

In 1868 I operated on	69	stallions	3	of which died.
" 1869 " " "	87	"	2	" " "
" 1870 " " "	102	"	1	" " "
" 1871 " " "	94	"	3	" " "
" 1872 " " "	100	"	none.	
" 1873 " " "	133	"	1	of which died.
" 1874 " " "	84	"	2	" " "
" 1875 " " "	120	"	2	" " "
" 1876 " " "	173	"	2	" " "
" 1877 " " "	182	"	3	" " "

Total : 1144 stallions 19 ratio about $1\frac{3}{4}\%$

Of this number there were ruptured 12 at the time of operation, aged as follows: Weanlings 3, one-year-old 2, two-year olds, three-year-olds 1, four-year-olds 2, five-year-olds 1. Total 12. In the majority of the cases the hernia was diagnosed prior to the operation, and the animal cast and operated on; with this fact in mind and all due care and attendance given the cases. In one or two others the discovery was not made until after the operation had been performed and the patients returned to their stalls. In one case, that of the five-year-old horse, the discovery was not made for some time afterward, while I was in the owner's house eating my dinner, the information coming to me from the owner's son, who was watching the horse, to see that he did not pull off the clamps while the caustic placed therein was irritating the cords. When I reached the stable the intestine was hanging down half way to the hocks. The animal was at once cast and after considerable difficulty the hernia reduced. This animal made a fairly rapid recovery. In the others from which the intestines protruded, the animals all died of peritonitis after reduction, or had to be destroyed because reduction and the replacing of the intestines within the abdominal cavity could not be accomplished. The causes of death in the 19 cases were recorded as follows: Tetanus or lock-jaw 9, peritonitis 6 (in three of these the ani-

mals were ruptured and operated on by the covered method), lung fever from cold contracted at the time of operation 1, hernia (animals destroyed because of it) 2, unknown 1. You will observe, therefore, that the cause of death in nearly 50% of the cases was from tetanus, while peritonitis caused nearly 30%.

Following the operation with the clamps, the condition of schirrhosis cord was very common, and during the first few years of practice by this method, I had frequently to reoperate on my own cases. Another complication that is frequently met with is the adhesion of the testicle to the covering membranes, even to the scrotum itself, and it often renders the operation quite difficult to perform.

The second period of history is the period of eleven years, from the 1st of January, 1883, to the 31st day of December, 1893, inclusive. During this time I have operated almost entirely with the House clamp and the ecraseur, using the wooden clamp only when I diagnosed or knew of the presence of a hernia. I would then employ them in the covered operation occasionally. I have used other instruments on trial or for experiment only, but for general use the first mentioned only. During this period I have castrated 1416 stallions of all ages, from three hours to twenty-two years old, at all seasons of the year, from January 1st to December 31st, and in all kinds of weather, regardless of the "farmer's sign," right or wrong.

In 1183 I operated on 178—9 of them ridglings.	1 died ridgling.
" 1884 " " " 145—4 " " "	none.
" 1885 " " " 116—6 " " "	4 died ridgling.
" 1886 " " " 148—4 " " "	3 " "
" 1887 " " " 150—5 " " "	none.
" 1888 " " " 138—8 " " "	4 died ridgling.
" 1889 " " " 111—7 " " "	1 " "
" 1890 " " " 96—6 " " "	4 " "
" 1891 " " " 82—3 " " "	1 " "
" 1892 " " " 101—2 " " "	none.
" 1893 " " " 151—12 " " "	3 died ridgling.
Total :	1416 66 21

(To be Continued.)

TYPHOID FEVER; OR, CONTAGIOUS INFLUENZA IN THE HORSE.

BY PROF. W. L. ZUILL, M.D., D.V.S.

(Continued from page 101)

TREATMENT.—Drugs of every description have been used in the treatment of this disease, and often without method or judgment. The random administration of drugs usually being more productive of harm than good, and not infrequently is the pharmaceutical combination such, that the drugs counteract each other, and produce incompatibles. Exhaustion of the system is most effectually produced by the simultaneous administration of drugs, which exert an opposite therapeutic influence. There are but few articles written on this subject, that do not contain the wildest inconsistent theories, with regard to the remedies advised. Almost every practitioner pretends to have a specific for this disease, as indeed for all others that are difficult to treat, and which, when tried, are found to be of little value. We will not take into consideration anything that has been written or advised on this subject, but by bearing in mind certain well-known clinical facts, will by deductive reasoning try to reach what we believe to be reasonable conclusions in the treatment of this disease.

The medical treatment of this condition, must entirely depend upon the symptomatology which the disease presents, that is to say that drugs must be administered to counteract the dangerous symptoms as they arise. The means used to reach this result must necessarily be as varied, as are the symptoms, and complications with which we must contend; therefore there is no systematic treatment for influenza, or typhoid ever in the horse. There are, however, general indications which are suitable to all cases, especially when the treatment begins with the first symptom.

It is these general measures to which M. Trasbot had called special attention in 1883, at a meeting of the Central Society of Veterinary Surgery.

There are two facts to be remembered in the treatment, the first of which is, that there is, from the very beginning all the general phenomena of an intense febrile condition, and secondly a marked tendency to congestion of the most vascular organs, with blood stasis. Given these facts we naturally ask, how are we to counteract these conditions most effectually and quickly? Notwithstanding everything that may be said to the contrary, the first indication is to bleed. The great benefits to be derived from bleeding were very clearly demonstrated by M. Trasbot in what he intended to be a series of experiments, finding no serious results from small bleeding, the quantity of blood taken was gradually increased until as much as 6 or 7 litres were withdrawn from plethoric animals. This treatment instead of killing the animals as was contended *a priori* produced an instant relief. The great advantage of this treatment, was the immediate improvement of the most dangerous symptoms, the emission of blood being always followed by improvement.

During the last few years I have had many opportunities to thoroughly test the value of this treatment, and in not a single instance have I had occasion to regret it, many of the cases so treated, requiring no other treatment.

Objection to venesection undoubtedly arose from the fact that earlier investigators erroneously supposed that this was allied to charbon or septicæmia, in which diseases bleeding is contra-indicated. Bleeding in the early stages of influenza or typhoid fever in the horse, was first brought to my notice through the writings of Prof. Trasbot of Alfort, and so thoroughly satisfied am I of its great value when used promptly and fearlessly, that I do not feel as if an apology was necessary for this repetition.

The practice of bleeding cannot do harm, and is not objectionable in any respect, but yet there are practitioners who will learnedly argue against it, without having tried its effects in a single instance. When pulmonary congestion is threatened, bleeding is absolutely necessary, and *free bleeding* in these cases is the only thing that will abort that complication, which

sooner or later must terminate in death. M. Trasbot recommends that the blood be drawn by making several small bleeding in the 24 hours, rather than one single bleeding, as it tends to remove a less quantity of corpuscles while taking the same quantity of liquid. This plan I have never tried, having always felt better satisfied to take at one bleeding from a good sized plethoric horse from 6 to 8 quarts of blood.

Counter-irritation in the shape of mustard or turpentine, applied to the skin of the extremities and belly, has been strongly endorsed by some writers, and from a theoretical standpoint, based upon the changes found upon post-mortem examination, it cannot do other than good. My own experience with it, however, is quite well, having always found that free bleeding fulfilled every indication.

When used, however, mustard is probably the best, as its action is more energetic and forcible than turpentine. Counter-irritation will no doubt greatly lessen the gravity of severe complications that may have a fatal termination—especially those of the nerve centres, and of the lungs—by causing the serous transudation to occur in the subcutaneous connective tissue, where it would be harmless, rather than in organs where it would be incompatible with life. It would certainly be of great value in cases that are not bled, and when it is associated with drugs which would powerfully influence the circulation. Turpentine, when used too freely, may cause serious complications by cutaneous irritation, especially of the thinner portions of the skin. This objection also applies to mustard which may cause cutaneous sloughs requiring a very long time to heal.

In addition to counter-irritation, drugs which act powerfully upon the heart and blood-vessels, thus influencing the circulation to a marked degree, will be of great value in the first stages of the disease. Veratrum and aconite best fulfill these indications during the first 48 hours, given frequently in small doses, and carefully watching the patient for the effects of the drug, which is capable of doing great harm if not used intelligently.

When the practitioner has seen his case early, and has made

a free bleeding, the indication then is to put the patient on an antipyretic treatment. There are agents—drugs if they may be so called (?) which combat fever by what is called a contra-stimulant action, but which I think can be better described as denutritive antipyretics, or antithermics, decrease the over active combustion of the body; they have been divided into two classes, those which lessen combustion by primary action upon the blood itself preventing molecular interchange, and those acting through the nervous system, and reducing fever by a secondary phenomena, which restores the tone of the capillary vessels, and consequently facilitates circulation in certain organs, thereby preventing stagnation and congestion.

“As a general rule, such antipyretics as are obtained from the mineral kingdom, may be classed as ‘denutritive,’ acting by their presence in the blood, and retarding molecular interchange between the blood globules and the tissue structures.”* Salts of mercury, arsenic and iodine act in this way in arresting molecular interchange, and are especially denutritive. Iodine and its compounds act especially upon the mucous tissues and the lymphatic ganglions; when given to an animal in full doses it will be seen that the temperature drops below normal circulation and respiration are diminished in force and frequency; the pulse becomes slow, and the visible mucous membranes blanched, and if the drug is pushed beyond this point anæmia soon follows.

Alkaline salts act in the same way. Bicarbonate of soda in small doses seems to increase the appetite, but in large doses it reduces temperature, bleaches the mucous membrane, and produces emaciation.

In typhoid fever or influenza in the horse, these remedies may be of some value, if given early. In giving iodide of potassium and bicarbonate of soda, even before there is localization fever—the result of too active molecular interchange—is counteracted, and the temperature, already reduced by the bleeding,

*Trasbot.

will be kept more nearly the normal level. There is, therefore, some advantage to be gained by using these drugs.

Among other drugs, sometimes of value in this disease, we find digitalis. It is of value in those cases when there is a marked and exaggerated action of the heart; it counteracts those influences which produce this condition, and stimulates those nerves which control or inhibit the over activity of this organ. In this way digitalis tends to counteract the flow of blood to points when there is a tendency to stagnation, and may therefore be useful, and in many cases indicated.

Quinine, one of the most valuable remedies in this disease, reduces temperature, and appears to act by stimulation of the ganglionic nervous system. Quinine appears to give much better results when it is combined with acetanilid, and given in 30 grain doses each, four or five times a day. In this combination they seem to exert a much greater influence upon the pyrexia than either alone; it appears as if the therapeutic action of one drug aided and influenced the action of the other, or that the effect of each upon the system was what was required in order that the action of the others may reach its full capacity. Stimulation will often be urgently required, strong infusions of coffee with a little good whiskey, will give the happiest results in these cases. From 16 to 32 ounces of infusion, one ounce of coffee to two ounces of finished product, with from two to four ounces of spiritus furmenti every 24 hours, will often give marvelous results, especially if associated with from 30 to 60 M doses of the tincture of nux vomica.

I know that this suggestion to use nux vomica in high fevers is likely to meet with considerable criticism, and that some will even hold up their hands in therapeutic horror, but this will only be from those who have never tried it.

From a review of the indications for the general treatment of this disease, it will be seen that bleeding should be immediately performed before any localization occurs. If we are liberal, and at the same time judicious, in this respect only the best results can follow, the fever is counteracted, temperature lowered,

and congestion prevented. This *may* be followed by counter-irritation with mustard to the chest, belly and extremities, as it will probably tend to prevent localization upon important viscera, and to establish it in the subcutaneous connective tissue. This must be followed by antipyretic remedies, such as quinine, acetanelid, salts of iodine, arsenic and mercury, bicarbonate of soda, etc. Iodide of potassium, when used, should be given in half ounce doses three times a day; it is expensive, but is by far the best of these salts. Bicarbonate of soda is cheap, and may be used to advantage in some of these cases. When there is a tendency to blood stasis, digitalis given in small doses frequently, for a day or two, will often do much good. Quinine and acetanelid become our sheet anchor, in the majority of these cases, especially when intelligently aided by drugs to meet special conditions, and judiciously supplemented by the use of such stimulants as coffee and alcohol.

TREATMENT OF LOCAL COMPLICATIONS.—The treatment of the localizations must be adapted to the different conditions as they arise, so that each new phenomenon will have to be combated by new and special treatment, in other words medicine must be given entirely to counteract symptoms.

Intestinal complications will be seen in the majority of cases, and is the least serious form with which we have to contend. It is first indicated to restore the normal tone of the digestive mucous membrane; this should be done with as little irritation as possible, and is best accomplished by the administration of small doses of sulphate of soda.

There are cases when abdominal pains and dull colics are present; these are probably best combated by the use of such anodines as camphor and chloral or asafoetida given in doses of from 2 to 33 each. It is not by any means infrequent to find cases of muco-albuminous diarrhoea due to the presence of irritating food masses. The first indication in treatment is to remove the cause by the administration of from 20 to 30 ounces of castor oil, containing one drachm of carbolic acid or iodine, and to continue the administration of these drugs in 10 or 15

grain doses three times daily for a few days. A very popular method of counteracting this condition is by the use of vegetable or mineral astringents. The effects produced by these medicaments is but temporary, it is a delusion, and the results looked for are not obtained. The anodine treatment will often give excellent results in these cases, stopping the diarrhoea in two or three days. Preparations containing opium should be given with extreme caution, and when used at all should be in small doses and freely diluted with water. By the use of opium we may produce that complication which we most fear, that is cerebral congestion; as we all know how frequently this occurs in the use of this drug, and especially in a disease when there is a tendency to this complication. Sometimes a loss of appetite is very persistent, even after all other symptoms have passed away, this is due to a lack of tone in the digestive mucous tract, and should be treated in a way calculated to restore this lost function, bitter tonics, stomachics and stimulants best fulfill this indication. When the localization is upon the respiratory organs or pleura, the treatment must be modified to suit the complication.

As soon as the lung lesion is manifest, it should be treated as an ordinary inflammatory disease. We have already resorted to bleeding and counter-irritation, this is now to be followed by ordinary treatment, good nursing, carefully watching for unfavorable complications in order to counteract them, *and as carefully avoiding too much curative treatment.* Alcohol and turpentine has been highly recommended in this complication, but it is far more likely to do harm than good; except in the latter stages when benefit may be derived from its use if given in small and frequent doses. Alcohol, when given too freely, produces results the very opposite of stimulation, tending to produce blood stasis rather than to prevent it; its use in this way is therefore irrational. Turpentine, when used in small doses during the convalescing stage, may exert a certain beneficial effect upon the respiratory mucous membrane, but has decided disadvantages if used at any other time, owing to the irritating

effects which may follow its use. The pulse in this complication should be closely watched, as there is frequently an indication for the use of digitalis, which may be given in from 30 to 50 M doses of the fluid extract. The effect of the drug must be carefully noted, and if the pulsations become slow or intermittent, the drug must be stopped. Over active treatment in this complication is to be avoided, as the very great majority of cases will get well in a week or ten days if the patient is not killed with medicine. Bronchial irritation, marked weakness, and poor appetite, often remain for a long time, after all other symptoms have disappeared; diffusive stimulants, tonics and nutritious foods and drinks fulfill all the indications in this case.

If the disease concentrates itself upon the nervous system, and does not yield to the general treatment already indicated, death almost invariably occurs. If founder is the complication, the ordinary course of treatment for this disease is to be followed, but not infrequently it will require several months for its complete recovery.

In those cases when gangrene of the lungs is a complication, it should be treated in a manner indicated by this condition, such as stimulants and antiseptics; but whatever the treatment, death will be the invariable termination. A large number of cases of this complication has been brought to my attention, and I have yet to see the first recovery, nor have I been able to find any recorded cases and gangrenous sloughs on the surface, whether primary or secondary, can often be successfully treated, and a general infection prevented. The treatment indicated in these cases is such as applies to all sloughing wounds.

In those cases of plastic and hæmorrhagic iritis, which is sometimes in the convalescing stages of this disease; very hot local fermentation is indicated, this combined with *Donovan's solution*, liquor arsenic et hydragri iodum, will give the best results. This preparation should be given in 60 M doses three times daily, and gradually increase to one ounce daily; in from 18 to 25 days; complete absorption of the transudate or hæmorrhage will have taken place.

HYGIENIC MEASURES.—There can be no question as to the contagious character of this disease, and it is, therefore, necessary to isolate all diseased animals, or rather to separate those which are not diseased from the sick ones.

Prof. Trasbot advises as the surest plan of arresting the disease, to turn all the animals out, and mentions several instances to prove its advisability.

As soon as typhoid fever manifests itself in a stable all well animals are better off outside than inside, especially those that are young and green, and if they can be given complete freedom in a field, straw yard, or open shed, the spread of the disease will be more completely arrested than by any other method, and my experience in this respect is entirely in accord with that of Prof. Trasbot.

As a further precaution it is necessary to thoroughly cleanse and disinfect the stables and whitewash, using a small quantity of chlorine or carbolic acid in the lime wash.

Animals after recovery, even after every symptom and manifestation of the disease has disappeared, will remain weak and unfit for service for several weeks, so that it is not possible nor prudent to expect service from them until it is seen that they are strong and well fitted for it. This fact applies to those animals that have had the disease in a very mild form, quite as much as those more seriously affected, so that they should be returned to work only after they have manifestly regained their accustomed physical vigor.

BIBLIOGRAPHY.—HAVEMANN, Hannov. Magazine, 1796.—NATMANN, Nachrichten von Staats u. Gelehsten Sachen, 2805.—WOLLSTEIN, Pferdeseuiche, 1805.—PILGER, Krankheiten der Pferde, 1805.—LEBLANC, De la Gastro-enterite Epizootique, Paris, 1825.—SPOONER, A Treatise on the Influenza, 1837.—LOUCHARD, Maladie Typhoide du Cheval, 1838.—HURTEEL D' ARBOVAL, Dictionaire Art. Gastro-enterite, 1839.—SPOONER, The Vet., 1841.—MOULIN, Journ. des Vet. du Midi, 1841.—GOURDON, Ibid., 1850-51.—DAMALIX ET REYNAL, Recueil Vet., 1842.—DÉNOC, Ibid., 1843.—LAMBERT, Ibid., 1848.—SPINOLA, Die Influenza du Pferde, 1844.—ERNES, The Vet., 1849.—LAFOSSE, Journ. des Vet. du Midi, 1856.—KOLL, Journ. de Lyon, 1859.—BALLIP, BOITEUX, BUGNIET, SAINT-CYR, Ibid., 1860.—LIAUTARD, Recueil Vet., 1854.—PRANGÉ FAVEREAU, Ibid., 1855.—SANSON, Ibid., 1856-57.—LOISET, Ibid., 1858.—ROTGIEUX, Bull. Soc. Cent. Vet., 1859.—TRELUT, Recueil Vet., 1860.

COLIN, *Ibid.*, 1866.—MEGUIN, *Ibid.*—H. BOULEY, *Bull. Soc. Cent. Vet.*, 1850-59-60-67-72.—BANY, SEINOL, TRASBOT, VATEL, UEBER, *Ibid.*, 1872.—SALLES, *Ibid.*, 1869-73.—IESSEN, *Magazine*, 1870.—COPEMAN, *Annal. de Bruxelles*, 1873.—HERTING, *Magazine*, 1873.—BENJAMIN, *Recueil Vet.*, 1875.—LEBLANC, *Ibid.*, 1879.—LABAT, *Revue Vet.*, 1878.—LEVCK, *Bull. Soc. Vet. Prac.*, 1881.—DIECKERHOFF, *Adams' Wochenschrift*, 1881-83-85; *Die Pferdestraupe*, 1882; *Spec. Pathol.*, 1885.—FRIEDBERGER, *Munch. Jahresber.*, 1880-81-82-86-87.—LUSTIG, *Hannor. Jahresber.*, 1880-82-83.—GÉRARD, *L'Echo Vet.*, 1881.—H. BOULEY, LAMENT, SALLE, *Recueil Vet.*, 1881.—MACGILLIVEAY, BUTTAS, FFNIS, SIEWRIGHT, *The Vet.*, 1882.—H. POULEY, *Soc. Cent. de Med. Vet.*, 1881-83-84.—ARLONG, AUREGGIO, *Ibid.*, 1882.—TRASBOT, 1884.—EGGELING, *Preuss. Mettheid.*, 1883.—CAVE, EDGAR, WITHWORTH, GRESSWELL, ROBERTS, *The Vet.*, 1883.—LAVALARD, *Bull. Soc. Cent. Vet.*, 1883.—HARTENSTINE, *Archiv. Vet.*, 1884.—ADAM, *Wochenschrift*, 1884.—WALTRRS, *Ibid.*, 1884.—STICKER, *Adams' Wochenschrift*, 1887.—STERLING, *Ibid.*, 1888.—GALTIER ET VIOLET, *Journ. de Lyon*, 1889.—CADÉAC, *Ibid.*—CAMPAGNE, *Recuil Vet.*, 1890. CAGNEY, *Ibid.*, 1891, *Ibid.*, 1885-1888.

AZOTURIA.

By DR. W. S. WINGET, Farmingham, Ill.

A paper read before the Illinois State Veterinary Medical Association.

In selecting this as my subject upon which to make a few remarks, I had in view the learning of other experiences with this disease. As the literature on this disease, as far as I could find, is quite limited, so will my paper be.

In giving the history of azoturia, it will be necessary for me to quote from Williams and the lectures of Dr. Baker on this disease.

When this disease was first discovered, there seemed to be a difference of opinion as to just what name should be applied to it. In Williams we find that Mr. Haycock gave the name, at the suggestion of a friend, "hysteria." Also, we find in Gamgee's "Domesticated Animals," the same malady is described as "Enzoötic Hæmaturia of Horses." Williams quotes a German writer, who states that it occurs in stallions and geldings only, or very rarely in mares, while Mr. Haycock, on the contrary, says it occurs in mares only, and for this reason gives the name "hysteria." Dr. Williams says it occurs in both horses and mares, which I have good reasons to believe to be correct. Dr.

Baker describes azoturia as a blood disease, of a plethoric type, characterized by sudden prostration, and inability to rise when down, caused by exercise after a spell of idleness, and during idleness high feed, giving rise to too much nutrition in the blood, an excess of urea, and non-elimination of effete material. All ages, sexes and breeds are subject to it, but it is most often seen in horses of first cross, as a blooded stud with a common mare.

ETIOLOGY.—We find azoturia in horses that have been highly fed and too little exercised. We find the urine overloaded with urea. Urea is the nitrogenous constituent of the urine, and in feeding highly-nitrogenous food we get an excess of the urea, causing the urine to become thick and dark or coffee-colored. Williams says the blood is charged with a superabundant quantity of albumen, unappropriated by the tissues, and that exercise, by increasing the rapidity of the circulation, and the respiratory movements, induces a rapid oxidation of such superabundant albumen, whereby it is transformed into urea, hippuric acid, etc., with which the blood becomes overloaded; and the kidneys stimulated to excrete what is deleterious. Albumen is occasionally found in the urine, but this is by no means constant, its presence, however, points to an aggravated form of the disease.

SEMIOLOGY.—In giving the symptoms I will describe a few cases I treated within a short period of one day last March. Mr. R——, living four miles west of Farmington, Ill., came in haste and gave me the following symptoms and history. That his neighbor had started for town, driving a fine draft mare, and she became very lame, broke out in a sweat, went down, and was unable to get up, and he was of the opinion that she had slipped and strained her back; also his mate had slipped and fell in the barn, both at home was suffering intense pain. The weather had been stormy, and he kept his horses housed in the stable for ten days without exercise. In the morning he had turned two of the horses in the barn-lot for exercise. In half an hour he decided to stable them, as one of them went very lame.

In catching it, it went down, and was unable to get up. It broke out in a profuse sweat and seemed to suffer great pain.

Mr. R—— hitched his mate (a large clumsy draft mare, weighing 1,400 pounds, half Norman), and started for Farmington, four miles distant. He noticed when he left home that his horse went lame in the right hind leg; trotted along for a mile, when his horse went down.

He stayed with his horse, and started a neighbor, near at hand for me, and when he arrived his horse was sweating profusely, the gluteal muscles swollen tense and hard, and the horse in a very excitable, nervous condition; pulse 75 to 100. I had him taken to my stable, withdrew his urine (which was of a dark coffee-color), and prescribed the following treatment:

R. Potassii Bromide \mathfrak{z} iv, and Ext. Gelsemii Fluidi \mathfrak{z} ii. Every three hours. Citrate of Lithium \mathfrak{z} iii, every two hours. I also ordered hot packs kept constantly on his loins, changed every few minutes, which I consider of the utmost importance in every case.

In the third case I had prescribed all the lithium I had in stock, and as I was of the opinion that it was a specific in all cases of azoturia at this date, I started a messenger to the nearest town for it. In the meantime I drew her urine and prescribed the following: R. Potassii Bromide \mathfrak{z} vi, Ext. Gelsemii Fluidi \mathfrak{z} iii. Every two hours for three doses and hot water packs as in the third case.

The second case was very quiet, with a pulse of 60, unable to get up, and with extreme muscular debility. I treated this case simply with wet blankets or packs over the loins and hips, changed every five minutes for six hours, and afterwards at longer intervals. Stimulants of whiskey \mathfrak{z} iv, every four hours.

I am not boasting on the treatment when I say that every case was on its feet the second day and made a nice recovery, but wish to impress on this association that I am strongly in favor of warm applications to the loins and back in these cases. If surroundings are favorable—that is, a warm box stall, with dry blankets properly applied afterward.

Dr. Williams says he has never seen any benefit accrue from external applications to the loins or back; on the contrary they increase the irritability. In every case where I have used them they gave ease and comfort to the patient. While not claiming that this remedy is a specific, I have found that it gave the patient great comfort and rest.

I did not relate these cases on the plea of any individual merit, but simply to illustrate the facts as I find them.

PENETRANT CAUTERIZATION IN THE TREATMENT OF LAMENESS FROM OSTITIS.

BY E. STURGE, V. S., Scranton, Pa.

Read before the Keystone Veterinary Medical Association.

Lameness from ostitis, and more especially from disease of the joints, is very common in our patients and no less serious, on account of the high development and the great work which is put on the limbs of the horse, what wonder that they are subject to these various troubles.

A perfect moving horse, with a perfect limb, may stand a great amount of work of any kind, but so many suffer from faulty conformation, from an hereditary tendency to bone diseases; so many have been put to hard work before arriving at maturity, and others are working under many disadvantageous circumstances, that we are often called upon to patch them up.

It is in the treatment of bone diseases, such as bone spavin, ringbone, splint, side bones and bony exostoses that I wish to refer to in this paper.

Before going further, it is well to lightly review the pathology of these diseases so that we may intelligently understand what we are treating and how we are to bring about a cure.

Take for example an ordinary bone spavin causing lameness. Here we have at first an inflammation originating in the cancellated structure of the bones involved. From here it soon spreads to the periosteum, the interosseus ligaments and the cartilage of these joints. An exudation is gradually thrown out between the bones and their cartilage, the nutrition of the

cartilage is impaired and ulceration of it ensues. When once there is ulceration of this structure, it can never regain its normal condition—nature never repairing this tissue when it is seriously diseased. Gradually the cartilage is absorbed, leaving the exposed surfaces of the bone in contact, thus enabling their vessels to communicate with each other, and true ankylosis can then take place. Periostitis is also taking place and the bone cells of the inner layer of the periosteum, which have been lying dormant, once more going to producing bone. A band of lymph is thrown out which is gradually converted into bone, constituting the exostosis so often seen in these diseases. This band of bone, endeavoring to cement the parts together, is a very important factor in producing ankylosis.

Very often, and especially when the conformation of the joint is bad, the diseased process starts from a strain which has torn a ligamentous insertion, lacerating some of its fibres and possibly injuring the periosteum. From this point the inflammatory process proceeds, involving the same structures as before. The same pathological phenomena are taking place in all bone diseases of this class with slight modifications. But this process is slow; the inflammation is of a sub-acute, or a chronic form, and our treatment must be to hasten things along. It is by converting a sub-acute form of inflammation into an acute, by setting up a reparative inflammation within the diseased structures and by aiding nature in every possible way that our success lies.

This is not the theory of counter-irritation or metastasis, for when destruction of the cartilage has taken place, we certainly do not want to attract the inflammatory process elsewhere. Our object should be to stimulate the reparative powers of nature to their utmost, and it is good practice to get as near the seat of trouble as practicable, and to spare the integument all we can. It is not the mere application of a hot iron, drawing fantastic designs, but it is the methodical and scientific introduction of heat into the diseased structure to bring about a certain result.

The inflammation produced by this form of cauterization,

when properly applied, is largely localized in the diseased tissues, and it is almost impossible to produce anything like this reparative inflammation, within the diseased structures, by medicinal remedies applied to the integument without unduly irritating this tissue and probably causing large patches to slough, leaving unsightly blemishes.

It is well to remember that many exostoses in close proximity to joints may cause acute lameness and still the joint not yet be seriously affected. By prompt measures such as a scientific and proper use of the actual cautery and repose, the disease may be arrested before it involves the joint. This is often so in many cases of bony exostoses in the neighborhood of the knee, fetlock, pastern and hock joints.

All these diseases are the more satisfactorily treated the earlier they are taken in hand. A bone spavin, taken in its incipient stage, may soon yield to treatment, though that treatment must be bordering on severity. Usually when the disease starts, it is very circumscribed in its extent, and if we can only get at this particular part before the surrounding tissues are involved and before the nutrition of the parts has been impaired, resolution may soon be brought about.

The actual cautery is the last, and often the only successful recourse, by which a cure is effected. It is always well to consider treatment by milder means, for in case of splints and side-bones, all that is generally required is the application of a smart blister. But any time spent in treatment milder than this is valuable time lost.

But in the case of bone spavin, with or without exostosis, bog spavin, accompanied with lameness (for such lameness is generally the result of bone disease which is causing the over secretion of synovia) ringbones, exostosis of the pasterns and in the region of the knee, nothing can approach penetrant cauterization in the sureness and speediness of a cure, and the blemish is less than that of any other method of cauterization. It may be well in some cases to combine the use of the feather iron with that of the points; this might be the case in bog spavin,

and in bone spavin in coarse heavy horses where we have reason to believe the inflammatory process has involved a large surface of the articulation. In such cases always make the points first.

INSTRUMENTS.—The best instrument for this mode of treatment is the thermo-cautery, for with its use the operation can be performed more rapidly, and is less painful, and the wounds heal more quickly than when iron is the agent used. The radiation of heat is less and there is no scaling of metal, and the operation can be performed regardless of forges. I use a Farny cautery, which so far as the points are concerned, gives good satisfaction. The tubing should be two and one-half feet long, so that an assistant can do the pumping as the operator will have both hands fully employed.

A very serviceable instrument is made of Norway iron, consisting of a handle and bulb, with a point protruding. The bulb should not be too long, and the point should be three-fourths of an inch in length, about the thickness of a quill at its base, tapering, and the tip not sharp. As the point burns off, it can be lengthened by filing back into the bulb, this is to guard against scorching the tissues with the bulb.

An instrument similar to this can be made by having a hole bored through a bulb and a fine rod passed through this, and so arranged that, as it burns off, it can be let down. The point can be finer than in the former instrument, and this is a useful iron to use after the other has penetrated the tissues some way.

The platinum point set in a cast iron bulb is used by many, but it cools quickly and the point is very flexible. Probably this might be remedied by having the platinum twice as thick at the base of the point as it is now generally manufactured. Copper and bronze are also used in making these tools.

The points are usually placed one-half to one inch apart, and they should cover a larger surface than that which the diseased tissue is limited. It is well to arrange them so that you can let them well into an exostosis and also to get points above and below the articulation we expect to ankylose. Follow no

pattern unless on a high exostosis, but place your points where you can safely puncture and where they will do the most good. The severity of the firing will depend on the age of the patient, and the area to which you suppose the diseased tissue is limited; the length of time lame and the amount of lameness will also be factors. The severity of courses will be varied by the depth to which we puncture and scar, the closeness of the points and the extent of the tissue they cover. A few points properly placed and well let in, will often do more good than three times as many superficially burned.

If not thoroughly familiar with the parts, it is well before operating to spend sometime in examining a specimen of the joint, comparing it with the living and decide where your points can be safely placed and where they will do the most good. Carefully examine the exostosis and satisfy yourself as to the bones involved.

As an example, we can take a ringbone. A row of points can be placed above and below the pastern joint, and if it extends high upon the os-suffraginis, an extra row will be of benefit. A ringbone generally requires pretty severe firing, especially in old patients. On that part of the joint which is covered by the tendon of extensor pedis, we are not able to accomplish much, but at the sides the cautery should be so introduced as to set up plenty of inflammation in the periosteum. The growth of the bone thus produced acts much as a splint, while complete ankylosis takes place. Of course no punctures are made in the posterior part of the joint.

It the case of an ordinary bone spavin limited to the lower part of the hock joint it is not always necessary to use the cautery all over the articulation, in parts where we know the tissues are perfectly healthy. It is well to map it into three areas—the first to the inside of the saphena vein, the second between the saphena vein and the tendon of extensor pedis, and the third to the outside of this tendon.

In the first area we can, if the exostosis is at all marked, put from five to seven points, touching the large and small

metatarsals and the three cuneiforms, if all these bones are supposed to be involved. In the second area, we can usually get about three, and if thought necessary to puncture the third area a few superficial points may be placed, but it is only in a very clean cut hock that we could expect to reach the diseased bones in this area. A few superficial points are placed around those which have been let in deeply.

Before operating, the shoes should be taken off and the feet pared level. The hair should be clipped from the joint, and the skin brushed thoroughly clean. If the operation is to be upon a ringbone or spavin, or of an equally serious nature, throw the patient, but circumstances may render this unnecessary or impossible.

One can often get along well enough with a feather iron by allowing the patient to stand, but the use of the pointed iron is a finer operation, requiring the patient's quietude, and the operator can work with more confidence and skill while the animal is secured.

I prefer the side lines, so called to distinguish them from the English hobbles. They are provided with a breast and loin strap and flex the hock so that the fetlock almost touches the stifle. The limb to be operated upon is released, though in case of a hind leg, not quite so readily as in the English hobbles. But the animal goes down so much more safely, and is so thoroughly secured when down, that it is preferable to any throwing apparatus that I have seen. A rope is attached to the pastern of the leg to be operated upon and held by an assistant. Every precaution must be taken for the safety of the patient, as fasting before throwing, a good bed of straw, plenty of help and a cushion for the head.

OPERATION.—The cautery being hot, the operator uses the first two fingers of the left hand to determine the exact point of each puncture, selecting slight eminences and avoiding the puncture of blood-vessels and bursæ. The punctures are not made by one application of the instrument, but by several. When on an exostosis let the cautery well in and in the imme-

diate vicinity of diseased tissues be sure that the cautery touches solid structures and sears them.

Be careful that the leg is always in the same position while operating, otherwise the perforation through the integument might come over another part and thus an important bursæ be punctured.

In using irons, of which there should be at least three, the fire must be close at hand and there should be assistants to attend to the heating and passing of them to the operator. Apply pressing but lightly and do not hold in one spot too long, guarding against severe radiation of heat which still has much to do with unsightly blemishes.

It is wonderful how severely one can cauterize a diseased joint in this way, setting up a severe inflammatory action and have no bad results. But much judgment is required in deciding the severity which is called for in each individual case. Young animals do not require such severe cauterization as older patients, and intense swelling and sloughing of the tissues might be produced. Nature needs assistance of varying intensity, according to many conditions which are readily apparent. It is well to bring about such an action as will be pretty well confined to the joint affected and not cause a severe swelling of the whole limb, for the reparative powers of nature do not accomplish much while the whole limb is dropsical.

A blister, composed of equal parts of biniodide of mercury and cantharides, mixed with one to five of lard, should be applied immediately after the operation to the whole joint, but it need not be very thoroughly rubbed in that part which has been punctured deeply. The patient is then placed where he will be kept quiet and the usual attention given him. He should not be walked more than a short distance, as air would be pumped in by this process.

After the blister has been washed off he should be placed in a roomy box-stall and kept perfectly quiet for at least a month; if the firing has been at all severe, and it is necessary to tell the owner not even to lead him out to water. If he has any ten-

dency to meddle with the parts a useful preventive is the "neck cradle" or other such device. The wound wants careful attention for sometime when the cautery has been deeply inserted, about ten days after the operation there is often quite a fetid discharge, requiring the cleansing of the parts with a weak antiseptic wash and the application of astringents and possibly caustics. This should be attended to until the granulations are healthy.

In many cases, at the expiration of a month, it is good practice to turn them out in a yard or pasture, but if inclined to run and play, the patient is better off in a box-stall until cured.

In about six to ten weeks the blister may be repeated if thought necessary. The application of this will be determined by the subsidence of inflammatory action which has been produced, the state of the integument and the lameness existing. If at the end of three months, the patient is still lame, the operation may be repeated. One should not feel discouraged because the first operation may not have had the desired effect, as the second will often prove successful.

A favorable sign is the gradual improvement in the lameness and the animal standing in a more natural position. The length of time we should expect a cure will vary from six weeks to a year.

Some old patients fired in this way, where complete ankylosis does not take place, may be very much relieved of their lameness by the movement of articulation being lessened from the organization of the effusion which has taken place around the joint, and by the subsidence of the inflammatory action.

If from any cause we are unfortunate enough to puncture an important bursæ, treatment should be the application of an antiseptic dressing and compress to the part. This should be changed daily until the flow of synovia ceases and kept in position some days after. By preventing the air from entering the wound, acute inflammatory action and pain will probably be prevented.

I can call to mind many cases in all classes of patients

where the results have been most gratifying after this operation, and where almost hopeless cases in aged animals have been returned to work in a wonderfully short period of time. But once in a while an apparently easy case will baffle all treatment and insist in going lame after repeated firings.

INFLAMMATION.

BY DR. A. BABB, D.V.S., Springfield, Ill,

A paper read before the Illinois Veterinary Medical Association.

The term inflammation is derived from the Latin *inflammatio*, a kindling, a conflagration; it is allied to the verb *inflammo*, to set on fire; the root of the word is the noun *flamma*, a flame, a blaze. All these point to the subjective sensation of heat experienced by the patient suffering from the acute stages of the disorder.

The very great importance of a full knowledge of this subject is manifest from two well-known facts: namely, that almost every organ of the animal economy is subject to its attacks and that the pathology of inflammation is the same in all of them.

ETIOLOGY.—Many heroic drugs, if not properly diluted or administered in a suitable excipient, will severely inflame the parts with which they come into immediate contact, such as the buccal mucous membrane, tongue, pharynx, œsophagus and other parts of the *prima via*.

Drafts of air, or a cold shower bath at an unseasonable time of year, especially on a heated horse may cause laminitis, pneumonia, nephritis, or the inflammation of any other important viscus. Over-exertion is also a fruitful source of the evil as seen in nephritis and lymphangitis, the former brought about by the immoderate exhibition of diuretics, the latter by an excess of stimulating food passing through the lymph glands, or in podophyllitis from the protracted driving of an unseasoned horse particularly on a hard, resilient surface.

Direct violence, such as nail-pricks, blows, incisions, either accidental or surgical, originate the pathological condition under consideration. Blisters, escharotics, the potential caus-

tics and the actual cautery stimulate indolent parts by substituting acute inflammation for lethargy.

Specific microbes, or their spores, on entering the circulation, after the expiration of their period of incubation, inflame the parts on which they expend their force, by a sort of elective affinity, and thus produce some one of a large number of diseases whose origin till the last decade was involved in mystery.

Thrombi, when detached from the seat of their formation, often cause embolic infarction and subsequent inflammation.

Prolonged maceration, as seen in the too persistent tubbing of the legs of track horses, or in the extremities of cart horses exposed to mud and water daily, frequently produces a veritable dermatitis.

In fine, any active congestion, other than physiological, if not cut short by appropriate treatment, is liable to merge into inflammation with all its dire consequences.

PATHOLOGY.—The blood plays a most important role in the phenomena of inflammation, hence it is advisable to turn some attention to it. The vital fluid is composed of a watery portion called plasma, or liquor sanguinis, and a solid, made up of four distinct microscopic bodies, the corpuscles.

These are the ordinary red blood cells or hæmocytes; the white cells or leucocytes; Hayem's hæmatoblasts and the invisible corpuscles of Norris.

The red blood cell of the horse, discoid in shape, is only $\frac{1}{4500}$ inch in diameter, but it makes up in number for its minuteness, as careful estimates show that the enormous amount of about 5,000,000 of them exist in a cube of blood, the one $\frac{1}{25}$ th of an inch on its edge.

The leucocyte is globular in form, possesses amœboid movements, and is the $\frac{1}{2500}$ of an inch in diameter. It exists in healthy blood in the proportion of one to each 500 of the red.

In 1878, Hayem described small, spherical, colorless bodies which he found in the blood and named hæmatoblasts.

There is one hæmatoblast to each twenty red blood corpuscles.

The so-called invisible corpuscle of Norris is not to be seen in the intact blood as it is of exactly the same color and refractive index as the liquor sanguinis, but can be readily perceived by drawing off that fluid by any one of several ingenious methods. They are of exactly the same size and shape as that of a red blood corpuscle, *i. e.*, like a biconcave disc.

The phenomena of motion and mode of circulation of the corpuscles, as observed by microscopic examinations, are wholly due to the laws which govern solid bodies of the same shape and specific gravity passing through small tubes in a similar liquid and are totally independent of the heart, endothelium of the blood-vessels and vaso-motor nerves. The present century has removed this, as also many other facts, from the realm of the mysterious to that of the purely physical.

In the normal state the hæmocytes circulate with a gliding motion, having their diameters transverse to the long axis of the blood-vessel, if it is so small that one of them nearly or quite fills up its lumen; while the leucocytes roll along against its superior wall. Hayem's hæmatoblasts, very minute, are interspersed among the red blood corpuscles in the axial portion of the vital current.

Leucocytes more principally in the slow-flowing peripheral part of the stream, and being viscid, have a tendency to stagnate and pass by migration through the walls when traversing the capillaries. I have searched in vain for facts as to the mode of circulating, followed by the invisible corpuscle of Norris.

Such is the normal, physiological condition of the circulation in an organ. However upon application of any of the causes mentioned above, which produce inflammation, there results, first of all, an irritation and congestion during the early stages of which the blood moves much more rapidly than usual and the corpuscles may be seen to dart through the capillaries with unwonted speed. This acceleration usually lasts for six or eight hours. Soon, however, owing to the increased blood pressure, much plasma is exuded into the surrounding tissue, leaving the corpuscles too dry to circulate rapidly. They be-

come more viscid, cling to the walls of the vessels, and that very strange phenomena of their passage through the unruptured parietes is observed.

Leucocytes migrate from both small veins and capillaries while there is diapedesis of hæmocytes from the latter only. They form a thick covering around the minute blood-vessels in the inflamed part.

Comparative stasis has now set and there is little circulation through a badly affected part for several days.

RESULTS.—The results of inflammation are the following: Resolution, effusion, suppuration, induration, adhesion and gangrene.

Resolution is seen where the cause is impotent or when the whole process is cut short by timely and vigorous treatment, leaving the organ in a normal state, with no signs of the prior pathological condition.

Effusion is the outpouring of a large amount of serum into the neighboring cellular tissue or some adjoining cavity as seen in hydrothorax from pleuritis, ascites from peritonitis, etc.

Suppuration ensues when the cells of the inflamed tissue are changed into those of pus by the presence of some one of several different pyogenic microbes.

Pus commonly springs from areolar tissue or from mucous surfaces.

Induration usually arises from protracted irritation or from inflammation of a low, chronic type, especially when located in tendinous, ligamentous or dermal structures.

Adhesion occurs principally where two inflamed serous surfaces are held in juxtaposition finally coalescing. Inflammation of serous parts tends to adhesion of mucus, to suppuration.

Gangrene, the death of a large part, is due to incompetency or total suspension of circulation.

SYMPTOMATOLOGY.—Among the symptoms of inflammation are pain, heat, redness, swelling and tension.

Pain springs from injury to, or pressure of the exudates on, the local nerves; in some cases, accordingly, free incision of the

inflamed part will greatly reduce the pain by removing this pressure.

The heat is due to increased chemical activity in the part, and this largely intensified, topical combustion causes the accelerated breathing of the patient to furnish the requisite amount of oxygen, just as threatened carbonic acid narcosis in the newly born foal or other young, by paralyzing the par vagum produces rapid respiration.

Redness is a sequel, the increased flow of blood to the part and perhaps, also, to the extravasation of hæmocytes. It attracts attention in our patients, chiefly where the skin is white and the hair short.

Swelling and tension originate from infiltrated serum which permeates the adjoining portions and puts them on the stretch.

TREATMENT.—For the sake of convenience, this section of the subject will be subdivided into two parts, constitutional and local.

To dispel the hyperæmia of the congestive stage of inflammation, belladonna, given internally, is the remedy par excellence, but we, more unfortunate in this respect than our cousins, the M. D's, are often not called till too late to derive the greatest benefit from this most useful agent. Many times in fact the veterinarian is summoned so tardily that no system of therapeutics, however sound, would be of use, and nothing could restore the patient unless some one should be found, as of old, who had the power successfully to say "Lazarus come forth!"

Of all drugs not only to allay the pain, but also to shorten the sthenic stages of inflammation, when its seat is an extensive serous surface opium is the chief; aconite and belladonna are frequently employed as assistants to it.

Enteritis in the horse, on account of the great extent and vascularity of these viscera in solipeds, is incurable, but morphine and atropine, or large doses of the crude drugs from which they are derived, afford the greatest relief.

As an antipyretic, alcohol with acetanilid or some of the other coal tar products, gives great satisfaction.

Demulcents in the shape of mucilaginous drinks, linseed tea and the like prove very serviceable when the principal mucous membranes are invaded. Soothing agents in the form of electuary are found of use in pharyngitis and similar troubles.

The acetate of potassium, or some similar antiphlogistic, should be administered to remove the debris consequent on the retrograde metamorphosis.

Digitalis, combining in a remarkable degree the properties of a heart tonic and a diuretic will aid materially to carry off by the kidneys the effusions of dropsy in any of its many forms.

When the upper air passages are involved the inhalation of medicated steam, constantly generated, is the *summum bonum*.

The regimen should be restricted in proportion to the acuteness of the attack. In general, stimulate the vicarious organs allowing the inflamed ones to rest.

LOCAL TREATMENT.—Hippocrates, the father of medicine, more than four hundred years before Christ, taught that it was the business of a physician to help his patient, or at least to do no harm. Bear this well in mind, it is better to do nothing than to do worse; better leave the meek dumb creature to the *vis medicatrix naturæ* than to torture it with irritating applications which only invite complications and add fuel to the flames.

It is a painful duty to say, however, that some of our brother practitioners seem not yet to have divested themselves fully of the common notion that drastic methods are necessary in treating the domestic animals, which are in reality bone of our bone and flesh of our flesh.

In the sthenic stages all heroic mixtures should be scrupulously avoided.

As an anodyne liniment, one of opium, belladonna and alcohol is among the best. Opium and the acetate of lead, though chemically incompatible are found to work well together in actual practice as a lotion; or soap liniment with aconite or veratrum viride will answer.

Avoid turpentine, aqua ammonia or any other Herculean prescription, and pin your faith to analgesics in some form.

Topical baths, hot fomentations or warm poultices where they are practicable, prove of the greatest service. In the primitive part of an attack of navicularthrititis, podophyllitis or fibro-chondritis, hot pediluvia are the sheet anchor so far as the local treatment is concerned.

When the acute inflammation has subsided and there is thickening and weakness, the attending physician is warranted in proceeding more vigorously—even to vesication. Probably the best epispastics are cantharides and mercuric iodide or a mixture of the two.

Under no circumstances use the oil of the croton tiglium, for even in the proportion of one to eight of oleum lini, it is liable to blemish. Euphorbium also is a dangerous remedy.

The propriety of counter-irritation in the chest diseases of our patients is to be questioned seriously. This was originally practiced under the crude impression that two inflammations could not exist in the same structure at the same time, so to cure the one on a deep-seated and vital organ, you had but to start another on the surface—than which there can be no greater fallacy. And the application of these irritative drugs to the abdomen in enteritis is most absurd.

If pus is formed, liberate it; if gangrene appears excise it, subsequently using the actual cautery. Adhesions of the pleuræ commonly prove intractable.

In surgical inflammation, castration the most frequent operation encountered, may be taken as typical. Aseptic instruments and hands with rigid cleanliness afterwards will ensure good results if the surgeon understands his business. The total discarding of lard to the parts, or other animal fat, which the heat of the patient soon renders rancid (thus inducing further inflammation and perhaps peritonitis), will prevent many of the unfortunate sequelæ of this necessary performance which every empiric, however illiterate thinks he fully understands. If it became necessary for you to have your finger amputated would you wish it to be removed with a clamp, or the actual cautery, or even to have the wound sprinkled with such caustics as cor-

rosive sublimate or the red precipitate of mercury? These agents are of as little use in intelligent castration. Do the work with an appropriate instrument which will stop the flow of blood, leaving nothing to interfere with the healing of the wound.

In the management of many cases of inflammation, as in other complaints, hygiene and general care are of as much importance as the selection of remedies just as in ancient battles the victory was due as much to the shield as to the sword. The successful veterinarian will look to every prophylactic measure, the quantity and quality of both feed and water, the ventilation of the stable, the size, location and quietude of the stall as well as the amount of bedding and clothing, for if any vulnerable point is left unguarded, there some complication may strike as the fatal arrow of Paris did the heel of Achilles. All in all the study and practice of medicine is as the immortal Hippocrates long ago concluded by saying "Life is short and the art long; the occasion fleeting, experience fallacious and judgment difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals co-operate."

VETERINARY JURISPRUDENCE.

VETERINARY SURGEON—DEGREE OF SKILL AND CARE.

By L. W. DINKELSPIEL.

A recent decision of the New York Supreme Court contains an explicit exposition of the liability of veterinary surgeons in a case of failure to exercise reasonable and ordinary skill and care.

An action was brought in the City Court of Albany by the plaintiff, a veterinary surgeon, to recover for services rendered and medicines furnished by him, in attending upon a sick horse of the defendant, and on account of which plaintiff claimed judgment for ten dollars. The defendant admitted the employment of plaintiff, but denied that the services rendered and medicines

furnished were of the value of ten dollars. He also alleged lack of knowledge, unskillful treatment and negligence of the patient in the treatment of said horse, whereby defendant was compelled to employ another veterinary surgeon, under whose skillful treatment the horse recovered.

On the trial the plaintiff was sworn as a witness and testified as to his attendance upon and furnishing medicine for defendant's horse, and as to the value of said services and medicine. He testified that he prescribed for inflammation of the bowels. On the part of the defendant evidence was produced tending to show that the horse did not have inflammation of the bowels, for which the plaintiff treated him. That the last time plaintiff visited the horse he was no better, and that plaintiff was informed of that fact. The horse was at that time throwing himself, getting up and throwing himself continuously. That one could hear him out on the sidewalk and people complained of the noise. That defendant kept a man in attendance upon him. That the animal being in this condition, plaintiff left agreeing to call again the next day very early, but in fact he never came. That plaintiff's last call was on Monday, and on Tuesday night defendant called in another veterinary surgeon.

The opinion in this case when before the Supreme Court was written by Judge Putnam. In the course of the decision the learned judge held that the same rules are applicable to the case of a veterinary surgeon bringing an action to recover for the value of services, as have been held applicable to other physicians and surgeons. He must possess and exercise a reasonable degree of learning and skill. He must use reasonable and ordinary care and diligence in the exercise of his skill and the application of his knowledge.

(*Carpenter vs. Blake*, 10 Hun., 358; *Hathorn vs. Richmond*, 48 Vt., 557.)

Further the decision declares that on the evidence in this case, the City Court could properly find want of care and negligence on the part of plaintiff in treating defendant's horse, in fact great negligence. The evidence produced by defendant,

which the trial judge had the right to believe, showed that plaintiff being called to treat the animal, and having undertaken its cure on the day of his last visit, the horse at that time being very ill, agreed to call the next day early, but neglected ever to call again. That the action of the plaintiff in leaving the animal he had assumed to take charge of in such a dangerous condition and failing again to call, according to his promise, was such clear negligence as justified the judgment rendered by the trial court. (See *Williams vs. Gilman*, 71 Mame 21; *Ballou vs. Prescott*, 64 id. 306.) And that the City Court could properly determine that defendant's horse was suffering from an "impaction of the colon," instead of inflammation of the bowels, and therefore that the plaintiff who prescribed for the latter disease, did not exercise a reasonable degree of skill in his treatment of the horse.

This is the case of *Boom vs. Read*, reported in 67 Hun., 426; S. C., 52 State Rep., 777; 23 N. Y. Supp., 421.

VETERINARY LEGISLATION.

REGULATING VETERINARY PRACTICE IN MARYLAND.

BALTIMORE, MD., April 19, 1894.

To the Editor AMERICAN VETERINARY REVIEW:

DEAR SIR:—Herewith you will find a copy of the law regulating the practice of veterinary medicine and surgery in Maryland. By the fifteenth section much latitude is given the owners of animals outside the City of Baltimore, to which place not being in any county the act applies strictly.

The modification of the bill was found necessary on account of the few veterinarians practising in the counties. You will oblige me by publishing the law with this letter for the benefit of students and others intending to practice in this State.

Yours truly,

A. W. CLEMENT, *Secretary.*

AN ACT to regulate the practice of Veterinary Medicine and Surgery in the State of Maryland.

SECTION 1. *Be it enacted by the General Assembly of Maryland,* That a commission is hereby established to be known under the name and style of "State Veterinary Medical Board," to consist of five commissioners who shall be members in good standing of some school of Veterinary Medicine, who shall be appointed by the Governor every four years, and who shall hold their office until their successors are duly appointed and qualified with power in and to said board to adopt by-laws and regulations, such as they may deem advisable to carry into effect the provisions of this act, provided the said by-laws shall not conflict with the Constitution or laws of this State or of the United States.

SEC. 2.—It shall be unlawful for any person or persons to practice Veterinary Medicine and Surgery in the State of Maryland without having previously obtained a diploma from a college duly authorized to grant such to students of Veterinary Medicine and Surgery or to those who have passed satisfactory examinations before the State Veterinary Medical Board or as herein provided for.

SEC. 3.—The said State Veterinary Medical Board shall hold their meetings at such times and places as they may deem best, which times and places shall be set out fully and regularly in their by-laws.

SEC. 4.—The State Veterinary Medical Board shall examine all diplomas as to their genuineness, and, each applicant not holding a diploma shall submit to a theoretical and practical examination before the State Veterinary Medical Board, said examination to be written, oral or both, which examination, if passed to the satisfaction of the said Board, shall entitle the applicant to practice Veterinary Medicine and Surgery, subject to provisions and regulations of this act, and regulations of the said Board.

SEC. 5.—All examinations of persons not graduates shall be made directly by the State Veterinary Medical Board, and the certificates given by the said Board shall authorize the possessors to practice medicine and surgery in the State of Maryland. All examinations of un-graduated practitioners must take place before the thirty-first day of December, eighteen hundred and ninety-four. After that date no certificate shall be granted except to persons presenting diplomas from legally chartered colleges.

SEC. 6.—Any person shall be regarded as practicing Veterinary Medicine and Surgery, within the meaning of this act, who shall have received a license as mentioned in Section 4. But nothing in this act shall be construed to prohibit members of the Medical profession from prescribing for domestic animals in case of emergency and collecting a fee therefor, nor to prohibit gratuitous services in an emergency, nor to prevent any person from practicing Veterinary Medicine and Surgery on any animal belonging to himself or herself. And this act shall not apply to commissioned Veterinary Surgeons in the United States Army.

SEC. 7.—*And be it enacted,* That it shall be the duty of such Board to keep a register of all practitioners qualified under this act practicing Veterinary Medicine and Surgery or any branches thereof, in this State, and cause the same to be published at least once a year in two newspapers published in the City of Baltimore.

SEC. 8.—*And be it enacted,* That the said Board shall within six months from the date hereof, prepare said register, in which all the names of all graduate practitioners

in the State at the time and in actual practice shall on application to the said Board, be inserted without examination, and shall also on application insert the names of such persons who are practitioners in actual practice without a diploma or certificate of qualification from a recognized school, who have been in practice for five years and upwards prior to the passing of this act upon proof to the said Board, that they have been so practicing, that all persons practicing at this time and not having been so practicing for five years antecedent to this act, shall undergo an examination before the said Board, and if found by said Board competent to practice, the persons so examined and approved shall be entitled to registration.

SEC. 9.—*And be it enacted*, That the said Board shall have power to reject any applicant for registration whose examination papers or diploma are not satisfactory.

SEC. 10.—*And be it enacted*, That on and after six months from the date of the approval of this Act, no person shall be permitted to practice Veterinary Medicine or Surgery or any branch thereof, in the State of Maryland, who does not possess a diploma issued from a College or School of Medicine, duly incorporated and legally licensed to issue diplomas, and if said diploma shall be issued after the first day of January, 1895, it shall be received only from a College or School of Veterinary Medicine which shall require a three years' course of study before issuing said diploma, and shall have passed such examination or test, as the case may be, from time to time, instituted as a test of qualification by such Board, and persons producing such certificates or diplomas who pass such test examination shall, on payment of such fees as hereinafter are provided for, be registered as Veterinary Practitioners.

SEC. 11.—*And be it enacted*, That no monies shall be paid out of the State Treasury for the use or purpose of said Act.

SEC. 12.—*And be it enacted*, That any person not registered who shall practice Veterinary Medicine and Surgery or any branch thereof, within the State of Maryland, shall be deemed guilty of a misdemeanor and shall be fined in the sum of not less than one hundred, not more than five hundred dollars for each offense, or imprisonment in the House of Correction for any term not less than three months, nor more than twelve months, for each and every offense.

SEC. 13.—*And be it enacted*, That the said Board shall be the prosecutor in all cases under this act and that such fine and imprisonment may be imposed by any Justice of the Peace of the City of Baltimore, or any county where such offense may be committed.

SEC. 14.—*And be it enacted*, That a moiety of the fine imposed under this act shall be paid to the informer, and the other moiety shall be paid into the county treasury wherein the offense shall be committed.

SEC. 15.—*And be it further enacted*, That in any part of any Election District of any county in the State where it may not, in the judgment of the owner of the animal, be advisable to secure the services of a duly authorized Veterinary Surgeon, then the person or persons desiring to obtain advice as to the physical condition of any animal or animals belonging to him or her may procure the services of any person that he or she may desire, to give such advice or to perform any services for the relief of his or her animal or animals that may be necessary.

SEC. 16.—*And be it enacted*, That this act shall take effect from the date of its passage.

CORRESPONDENCE.

REGULATING VETERINARY PRACTICE IN VIRGINIA.

RICHMOND, VA., April 25, 1894.

PROF. LIAUTARD, M.D.,

MY DEAR SIR:—Kindly correct, see last month's journal. The only veterinary legislation existing in Virginia is that which incorporated the Virginia State Veterinary Medical Association. The "bill" mentioned in last month's journal was "squelched" by this association and another substituted which completely ignored the unprofessional; this was reported favorably by house committee, but the legislature adjourned before it *could* be acted upon. Many thanks for association recognition. Best wishes.

Yours faithfully,

A. W. SWEDBERG, *Secretary.*

ACT OF INCORPORATION.

1. Be it enacted by the General Assembly of Virginia, That W. H. Harbaugh, E. P. Niles, George C. Faville, William C. Gilchrist, J. H. Adamson, T. A. Donaldson, Joseph T. Bushman, A. W. Swedberg, as well as all others who may be hereafter admitted to membership with them, be a body corporate and politic by the name of the Virginia State Veterinary Medical Association; that they shall have perpetual succession and be authorized to use a common seal.
2. Be it further enacted, That it shall be lawful for the Veterinary Medical Association thus constituted, to enact all such by-laws as they may deem necessary and proper for obtaining the objects of their institution and not contrary to the Constitution or law of the United States, or of the Commonwealth of Virginia,
3. Be it further enacted, That it shall be lawful for the said association to require of persons admitted to membership therein such admission fee and annual contributions as a legal quorum thereof may from time to time enact; and if any member shall refuse or fail to pay such admission fee or annual contribution that the same shall be recoverable by the association on motion, with ten days' notice, before the proper courts of this Commonwealth, or in any county, city, or corporation whereof the member so failing or refusing to pay shall be an inhabitant,
4. Be it further enacted, That it shall be lawful for the said association to hold, under any title recognized by the laws of Virginia, such buildings as may be required for their immediate personal accommodation as an association for lecturing rooms, for a dissecting room, and such other apartments as may be manifestly necessary or convenient for the promotion of veterinary medical knowledge,

5. Be it further enacted, That it shall be lawful for the said association to hold under any title recognized by the laws of Virginia, whether coming to them by purchase, donation, or otherwise, so much real property, exclusive of that mentioned in the fourth section of this act, whereof the clear income on an average of ten years shall not exceed two thousand dollars per annum,

6. Be it further enacted, That this act shall be at all times subject to be altered, amended, or repealed, as the legislature of Virginia shall deem necessary and proper,

7. This act shall be in force from the passing thereof.

COLUMBIA, MO., May 14, 1894.

Editor of AMERICAN VETERINARY REVIEW:

DEAR SIR:—The proceedings of the International Veterinary Congress and United States Veterinary Medical Association held in Chicago in October, 1893 will soon be ready for distribution. Each member is entitled to a copy of the proceedings.

Yours respectfully,

F. G. TURNER, *Secretary.*

FOR SALE.

Veterinary practice and outfit for sale, office and hospital rooms free for one year, within one block of Court House. One operating table (Prier's) good as new, full set of dental, obstetrical and ecraseurs, slings, etc. Original cost of outfit \$500. A practice of seven years' standing, no other graduate within forty miles. City of 12,000 or 13,000 inhabitants; three main railroads; richest farming community in the State; nearly one thousand head of standard and registered horses in the county. Reason for selling poor health.

Write for further particulars,

A. E. HERWENT, D.V.S.,

Marshalltown, Iowa.

Fine location for sale at Walton, a village of about 3,000 inhabitants, situated on the N. Y. O. & W. R. R., 180 miles from New York, on the junction of the Delhi Branch; 17 miles from Delhi, the county seat; 21 miles from Hancock, where the O. & W. crosses the Erie Railroad; and 21 miles from Sidney, where the O. & W. crosses the D. & H. Fine office centrally located, good accommodations for boarding patients. Instruments, library, slings, two sets of casting harness, etc., etc. The whole closed out for strictly cash. Terms made known on application. Must sell owing to failing health. Address,

T. H. SMYTHE, V.S.

Veterinary practice established five years in city of forty-five thousand (45,000) in farming country. Only one other veterinary within one hundred and ten miles.

Good climate, good schools, etc., etc.

Easy terms. For particulars, etc., apply,

DR. POE,

Knoxville, Tenn.

SITUATION WANTED.

Veterinary surgeon, graduate in Europe, best references, author of zootechnical and medical works, wishes to find a situation in a veterinary institute, in a breeding establishment, or any other place. Speaks French, German and English languages. Apply,

DR. GOEBBELS, V.S.,

Egg Harbor City, N. Y.

SOCIETY MEETINGS.

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular meeting of the Massachusetts Veterinary Association was held at 19 Boylston Place, on January 24th, 1894, at 7.30 P.M.

The President, Dr. Burr, occupied the chair. The members present were Drs. Becket, Blackwood, Burr, Emerson, Towle, Howard, Marshal, Parker, Simpson, Winchester and Winslow. Honorary member, Dr. Stickney.

The minutes of last meeting were then read and accepted, and there being no business before the association, and the regular essayist not having arrived, Dr. Parker read a paper on "The Prevention of Tuberculosis."

In the discussion which followed Dr. Winchester suggested that the association have taken steps to have tuberculosis placed on the list of contagious diseases. It is generally accepted that there is no other disease which causes so many deaths as tuberculosis in its various forms. As showing the value of sanitary reform, he referred to the towns in the Merrimack Valley. These towns use the river water for public services. Through the exertions of one of the members of the State Board of Health, a filtering gallery for river water was put in at the City of Law-

rence; since then the death rate has been much reduced. The death rate from typhoid is now under 4 %, while the death rate from tuberculosis is nearly 8 %. Continuing, he said this association ought to be the first to put itself on record as recognizing tuberculosis as a contagious disease.

Dr. Emerson thinks the idea of conferring with the State Board of Health is a good one.

Dr. Becket said he had been somewhat surprised lately to see in insurance reports an article congratulating the companies and the public on the fact that according to insurance reports, people are getting longer lived, and that deaths from tuberculosis are gradually decreasing.

Dr. Parker stated that the reason given for the seeming falling off in deaths from tuberculosis was because the establishment of Post Graduate schools, and the consequent better education of country practitioners had resulted in greater strictness in examination; fewer poor risks had been taken by the insurance companies with the result that in the insurance commission reports, the death rate from tuberculosis had decreased.

After a further discussion, Dr. Winchester moved that a committee be appointed from members of the association to approach the authorities on the subject.

Dr. Burr wished to point out that in the City of Boston the by-laws required that each animal shall have 1000 cf. Many of the other points suggested by the essayist were at present in force in the city. He thought the cattle commissioners were doing all in their power with the force at their disposal. The amount of work they had to do was very great.

Dr. Howard thinks if anything is to be done in the matter, it should be well discussed, statistics should be looked up, and the association should be sure of its ground. He then moved that the discussion should be continued at next meeting. Seconded by Dr. Winslow.

Dr. Parker moved as amendment that a committee be appointed, consisting of members of the association who have had experience with tuberculosis, to report at next meeting on the

subject of tuberculosis. Seconded by Dr. Blackwood and carried unanimously.

Dr. Winslow then moved that the committee consist of five persons with the president and secretary, ex-officio. Carried.

Dr. Howard moved that the committee be appointed from the floor. Carried. The following committee were then appointed with instructions to report at next meeting: Dr. James B. Paige, Amherst; Dr. Winchester, Lawrence; Drs. Peters, Howard, and Osgood, Boston, with the president and Secretary, ex-officio.

Dr. Simpson then read an interesting paper on "Digitalis."

In the discussion which followed Dr. Howard said he usually tried to limit the amount given to one drachm of the fluid extract in the twenty-four hours. The great danger in its use is because of the digestive troubles that supervene. It should be used with caution. When judiciously used, however, it is a valuable remedy.

Dr. Becket has had good results where the horse has recovered from the acute stage of pneumonia, leaving him with feeble pulse. It should, however, be used with great caution.

Dr. Winchester has had good results from *veratrum viride* in cases where the pulse was 80 or 90 and small and weak, he has used *veratrum*, and in a few hours the pulse has come down and is strong and full; afterwards puts on to alcohol. The after results of "digitalis" are sometimes serious but has never seen any bad results from *veratrum*.

After a good deal of discussion and a vote of thanks to the essayist, the president called for report of cases.

Dr. Parker reported an unusual case of azoturia. The horse belonged to the Haverhill Street Railroad Company, and had a day off for three years. He was taken sick at the end of a day's work, when he was on his last trip, about five miles from his stable, he was noticed to stumble once or twice; finally he came down unable to use his fore legs. The day was very stormy, sleet was falling and a nasty wind was blowing. The horse unfortunately had to lie on the wet snow in the storm for about

two hours, covered only by a couple of old sacks; finally he was put on a stone drag and hauled to a barn one half mile away.

He was suffering a good deal; the muscles of the shoulders were rigid; he was unable to use his fore legs; and his urine was dark and coffee-colored. The next morning, with the help of slings, he was placed on his feet, put on a sled, and taken home, where he died the following night.

Dr. Howard reported a somewhat similar case, where the horse had been working every day and had not been loafing. When seen he was unable to stand, and the urine had the characteristic dark color. He recollected three cases with paralysis forward, muscles of the shoulder hard and dark colored urine.

Dr. Blackwood has had several cases where the fore extremity had been affected. In these cases it is common to have atrophy of the muscles.

Dr. Marshall reported a case where the horse recovered from the first attack and for sometime afterwards he had periodical weekly attacks.

Some of the other members have had similar cases to those reported.

The discussion then turned on kicking mares and the effect produced by spaying and excision of the clitoris. Dr. Becket reported three cases in which he had excised the clitoris by making an incision round the base and sloughing off by common elastic band. He had good results in two of the cases mentioned.

The meeting then adjourned till next month.

JOHN M. PARKER, *Secretary*.

MASSACHUSETTS VETERINARY ASSOCIATION.

The regular monthly meeting of the Massachusetts Veterinary Medical Association was held at 19 Boylston Place, on Wednesday, February 28th, 1894, at 7.30 P.M. The members present were Drs. Becket, Bryden, Burr, Emerson, Howard, Labaw, Marshall, Osgood, Parker, Soule, Winchester, and Winslow. Honorary member, Dr. Stickney.

The minutes of the last meeting having been read and accepted, the report of the committee on tuberculosis was submitted.

The recommendation of the committee embraced the following points: 1st. That the March meeting be devoted to the consideration of the subject of tuberculosis.

2nd. If the previous recommendation be adopted by the association, that the members of the association invite any person interested in the subject of tuberculosis to be present.

3rd. That the association employ a stenographer for the evening of the March meeting.

4th. That the association pass a resolution putting themselves on record as recommending that, as bovine tuberculosis has been placed under the "Contagious Diseases of Animals" Act, we believe that certain forms of the disease in man should be so recognized.

The *first recommendation* that the March meeting be devoted to the discussion on the subject of "Tuberculosis," received a good deal of discussion. It was finally decided that the time before the March meeting was too short for the preparation of papers on such a subject, and it was thought best to delay the discussion till the month of May.

The *second recommendation* that members invite any person interested in tuberculosis to be present, was unanimously adopted.

The consideration of the third recommendation was postponed till later.

The *fourth recommendation* created a lively discussion; Drs. Bryden, Howard, Osgood, Winchester, and others taking part. Dr. Bryden objected to the passage of such a resolution on the ground that tuberculosis is neither so widespread nor so serious as has been represented. Finally Dr. Howard offered the following resolution which was seconded by Dr. Winchester.

Resolved, That as bovine tuberculosis is recognized by the "Contagious Diseases of Animals" Act as a contagious disease, in our opinion that, being due to the same germ, certain forms

of the disease in *man* should *also* be recognized by law as contagious.

After some further discussion the resolution was adopted with one dissenting vote.

Drs. Osgood, Burr and Parker were then appointed a committee to interview some of the well known physicians and pathologists with the object of getting them to read short papers on tuberculosis at the May meeting.

There being no further business, the meeting adjourned till further notice.

JOHN M. PARKER, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The first regular meeting of the Veverinary Medical Association of New York County, was held February 6th, 1894.

The meeting was called to order by the President, Dr. R. S. Huidekoper; upon roll-call the following members responded to their names, viz.: Drs. Amling, Becket, Bieser, Buckley, C. C. Cattanach, J. J. Cattanach, Dickson, Delaney, Ferster, Field, Giffen, Gill, Huidekoper, Jackson, Loomes, Liautard, Hickman, Hanson, Neher, O'Shea, Parkerson, Parsons, Robertson, Ryder, Richards, Sherwood, Sielman, Ferguson and Turner.

The minutes of the previous meeting were read and approved.

Dr. Huidekoper then stated that the society had mailed each member a list of the practitioners registered in New York County, and stated that the list contained the names of a number who have left the city and several who have died, he asked that each member correct the list as far as he knew, and return the same to the secretary in order that the association may know the exact number of practitioners and their residence in New York County.

The committee on Constitution and By-Laws, submitted to the meeting the Constitution and By-Laws as formulated by them, after which they were read section by section, and a

general discussion by the members followed, after a number of amendments were made and an extra section added they were adopted.

Moved by Dr. Giffen and seconded by Dr. O'Shea, that the president appoint the judiciary committee as adopted in the by-laws. Carried.

Moved by Dr. Liautard, and seconded by Dr. Hanson, that the committee on by-laws rewrite them as amended, and read them at the next meeting. Carried.

Moved by Dr. Liautard, and seconded by Dr. C. C. Cattach, that a committee of three be appointed by the president to select a draft for the certificates of the association, with wording adopted in the by-laws. Carried.

Moved by Dr. Ferster and seconded by Dr. Liautard, that the judiciary committee consider plans for incorporation and report at the next meeting. Carried.

Moved by Dr. Gill and seconded by Dr. Field that a vote of thanks be extended to Dr. Hanson for his efforts in causing the dissolution of another society, and recommending them to join this association. Carried.

Moved by Dr. Gill, and seconded by Dr. O'Shea that the committee on conference be dissolved with thanks. Carried.

The president then announced the following committees: Judiciary, Dr. Giffen, Chairman; Drs. Buckley, Ryder, Turner, O'Shea, Certificate's; Dr. Liautard, Chairman; Drs. Sherwood and Becket.

The meeting adjourned.

J. ELMER RYDER, D.V.S., *Secretary*.

ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The Nineteenth Annual Meeting of the Alumni Association of the American Veterinary College, was held in the lecture room of the college building, March 20th, at 11 A.M.

Among other things were a number of reports from various

State Secretaries, which were very interesting, containing much data regarding the workings of the veterinary profession in the relative States, including the laws, diseases most prevalent, the number of veterinarians in the State, their positions, etc., etc.

After the transaction of business, the election of officers for the ensuing year took place. The following were duly elected: President, Dr. H. D. Hanson, of New York; Vice-president, Dr. E. B. Ackerman, of Brooklyn; Secretary, Dr. J. B. Hopper, of Ridgewood, N. J.; Treasurer, Dr. W. V. Bieser, of New York; Librarian, Dr. G. W. Meyers, of New York.

The meeting then adjourned.

In the evening the commencement exercises were held at Chickering Hall, after which the members of the faculty and alumni proceeded to Zangheri's on 22d Street, near Broadway, to attend the banquet, which was a grand success, both to the inner man and socially. After various toasts from members of the faculty, the graduating class and representatives of various other classes, the party disbanded, all promising (as far as possible) to attend the dinner next year.

J. B. HOPPER, D.V.S., *Secretary*.

SOCIETY OF VETERINARY GRADUATES.

The fourth annual meeting of the Society of Veterinary Graduates of Wisconsin was held at the City Hall in Madison, Wednesday, March 8th, at 1.30 P.M. President E. D. Roberts, of Janesville, in the chair.

Roll-call showed twelve members present, namely: Drs. E. D. Roberts, Ormond, Leech, Roub, Kelso, Woodford, Laus, Unertt, Schmitt, Culdham, Newton, and Dave Roberts.

The following visitors were present: Drs. Clark, Morgenthau, Binger.

Minutes of the last meeting read and adopted.

The annual report of the secretary and treasurer read and adopted.

Under the head of unfinished business the code of ethics read at the last meeting was adopted and ordered printed.

Moved and seconded that resolutions be drawn up by a committee composed of Drs. Leech, Ormond and Laws, asking that some action be taken by the State Board of Health toward the extermination of "tuberculosis" on the dairy herds throughout the State.

Committee was given until evening to draft same.

Moved by Dr. Ormond and seconded by Dr. Schmitt, to condemn the action of the State Veterinarian in regard to the manner of handling and exterminating glanders throughout the State.

Adopted on motion of Dr. Laws and seconded by Dr. Woodford, that the committee on legislation were authorized to frame a bill to be presented at the next meeting of the legislature to regulate the practice of veterinary surgery in the State.

Discussions were then taken upon the subject of tuberculosis, and some of the experiments being made at the State University, were presented by Dr. W. G. Clark.

Moved and seconded that the society of Veterinary Graduates does not recognize the diploma of Dr. F. J. Toussaint. Adopted.

Moved by Dr. Woodford and seconded by Dr. Unertt, that members shall report all persons eligible to membership to the secretary, also all deaths and removals from their vicinity; they shall also report all cases of contagious and infective diseases in their midst or coming to their notice. Adopted.

The report of the secretary as delegate to the United States Veterinary Medical Society was read and adopted.

The next order of business was the election of officers for the ensuing year and resulted as follows: President, C. D. Woodford, Madison; Vice-president, J. F. Roub, Monroe; Secretary, G. Ed. Leech, Milwaukee; Treasurer, C. H. Ormond, Milwaukee; Censors, Jno. F. Unertt, Milwaukee; David Culdham, Stoughton; E. H. Newton, Waupau.

On motion the meeting adjourned to meet at 7 P.M.

EVENING SESSION.

Meeting called to order with Dr. Woodford in the chair.

Under the head of new business the subject of issuing a new certificate of membership to all active members was discussed and ordered issued and printed.

The selection of a suitable coat of arms to be used by the society and also to be placed on the new certificates, was left to a committee of three, composed of Drs. Leech, Ormond and Unertt.

There was a lively discussion in regard to fixing a schedule of prices, but no definite action taken thereon.

There were four names presented for membership, and being reported on favorably by the censors, were declared elected, namely: Drs. W. G. Clark, E. L. Morgenwroth, S. S. Binger and Gus Brauchle.

Dr. Roub then read a paper on "Fistulous Withers," which brought out a general discussion and was followed by a paper on "Laryngitis" by Dr. Laws, the discussion being entered into heartily by the members, after which the committee on "Tuberculosis," submitted the following report:

Whereas, The Society of the Veterinary Graduates of Wisconsin recognizing the fact that the time has come that some action should be taken in regard to the extermination of the disease "Tuberculosis," which is infecting the dairy herds of this State, thereby carrying the disease through the meat and milk to the human family. Therefore be it

Resolved, That this Society, through the legislative committee, recommend some bill to be acted on by the next session of the legislature for the eradication of this disease from these herds in the interest of public health, and be it also

Resolved, That this Society endorse the efforts of the United States Society to get Federal legislation on this subject.

Submitted and adopted, it was decided by a vote of 5 to 6 to hold the next meeting in Madison, Wednesday, August 1st, 1894.

Essayists appointed for the next meeting were Drs. E. D. Roberts, W. G. Clark and D. Culdham.

Dr. Roub reported a case of hydro-metric amnion in a cow,

from which he drew thirty gallons of aquæous fluid, giving relief from apparent distress with no fœtus present.

There being no further business to come before the meeting it was adjourned to August 1st, 1894.

G. ED. LEECH, *Secretary*.

WESTERN IOWA VETERINARY MEDICAL ASSOCIATION.

The eleventh quarterly meeting of Western Iowa Veterinary Medical Association was held in the office of the President, Dr. G. C. Johnson, Sioux City, Ia., Tuesday evening April 10th, 1894.

Although the attendance was small, interest was not lacking among the members present.

Among other matters considered under the head of routine business, the committee on legislation reported the failure of the committee on legislation of the State Association to secure the passage of its bill, or the one introduced by representative Sawyer.

It was the opinion of the committee that two factions entered into the defeat of the bill. The first was the failure of the State Association Committee to have a meeting at Des Moines while the legislature was in session, and secondly to the indifference of many members of the profession throughout the State.

The committee urged a better attendance of the association meeting and a more united effort in the future.

The discussion following this report was quite lengthy and animated.

It was decided that the assessment of \$1.00 from each member of the association, declared at the last meeting, January 31st, 1894, to defray expense of the legislative committee, and not used, should be turned into the treasury for future use, and that all members who had not paid same, he was to notify to do so at once.

Under head of papers, report of cases, etc., Dr. F. P. Gaunt, of Akron, Ia., reported two cases of cystic obstruction.

In the first case the Dr. operated as follows: Injected cocaine at the ischial arch of the urethra, then passed a catheter, cut down on some and then withdrew it, and by means a placenta

(human) forceps, succeeded in drawing away about one pint of sebaceous matter which very closely resembled that found in the sheath of a healthy horse.

After having removed all the solid matter, washed out bladder with solution of creoline, and closed wound with two interrupted sutures.

Case made a very satisfactory recovery. Question, what caused an accumulation of this character?

Second case, presenting similar symptoms, proved on examination to be suffering from enlargement of prostate glands. Case made good recovery under pot. iodide treatment. Dr. J. I. Gibson, of Denison, Ia., reported a case of uterine torsion in a cow which he relieved by roping the cow, and with his hand introduced into the uterus as far as possible, he held it from turning while assistants rolled the cow same direction as the torsion, by this means the torsion was reduced and the cow delivered of a live calf.

The object of rolling the cow in same direction as the torsion, is to have the cow catch up with the uterus so to speak. Complete report of this case will be sent you in near future.

Dr. G. A. Johnson reported a case of puncture of perineum of a mare in foal, that extended along the side of and partially under the vagina and bladder into the abdominal cavity.

The wound was large enough to permit the hand to be passed into the abdominal cavity.

Case made a satisfactory recovery. All report of cases was fully discussed.

It was decided to hold the next meeting of the association in this city some time during the early part of July.

J. I. GIBSON, *Secretary pro tem.*

Per G. A. J.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The Tenth Annual Meeting of the Veterinary Medical Association of New Jersey was held at the State Street House, April 12th, 1894.

Meeting called to order at 11.30 A.M. by the President; the following doctors answered to the roll-call: W. B. Miller, J. W. Hawk, J. C. Dustan, A. Brown, J. C. Higgins, B. F. King, W. Runge, R. O. Hasbrouck, S. Lockwood, J. Gerth, Jr.; J. M. Everitt, M. M. Stage, E. Britton, B. L. Drummond and I. Kilburn; the delegates from Pennsylvania State Veterinary Medical Association, Dr. Horace Hoskins, Prof. Leonard Pearson; New Jersey Medical Association; Dr. J. W. Stickler, M.D., and A. Van Nest Baldwin, M.D.

Visitors, Dr. Harker, of Trenton, and Mr. Geo. Fetter, student from National College, Washington, D. C. Minutes of previous meeting read and approved. The president's address was of a practical nature and was the key-note to our future success as veterinarians.

The secretary then reported the death of one of our members, Dr. O. C. Eisenhart, of Asbury, Warren County, N. J., on February 1st, 1894. The president appointed Drs. Dustan, Brown and King a committee to draft suitable resolutions, and forward a copy of same to relatives of deceased, also to drape a chair for this meeting. The secretary reported only 25 active members. The treasurer reported a balance in hand of \$38.74. Dr. Drummond then read a report of some cases of lead poisoning in cows. Dinner being ready, adjourned at one o'clock.

2.15 P.M. meeting reconvened, Dr. Higgins moved to suspend the order of business and listen to the reading of the Legislative Bill as the committee reported the same completed. Carried. Dr. Baldwin then read the bill, which was approved by the association. Dr. Baldwin then read Assembly Bill 363, being a bill relative to Tuberculosis, and now before the Assembly. Dr. Hawk moved that this meeting disapprove this bill, and that the president and secretary notify the State Board of Agriculture of the same. Carried. Dr. Hoskins then spoke of the veterinary bill and congratulated not only the association but the people of the State in having men who were trying to benefit the masses of the people by trying to eradicate this dread disease, "Tuberculosis," from our State; he was followed by Dr. Stickler and

Dr. Miller. A vote of thanks was then tendered the joint committees and Drs. Stickler and Baldwin especially for their efforts in getting the bill ready for this meeting.

Election of officers resulted as follows: President, Dr. W. B. E. Miller, Camden, N. J.; 1st Vice-president, Dr. J. C. Higgins, Bound Brook, N. J.; 2nd Vice-president Dr. E. Britton, Long Branch, N. J.; Secretary, Dr. S. Lockwood, Woodbridge, N. J.; Treasurer, Dr. B. F. King, Little Silver, N. J.; Trustees, Drs. J. W. Hawk, J. C. Dustan, R. O. Hasbrouck, W. Runge and A. Brown.

Dr. J. W. Stickler, M.D. and Dr. A. Van Nest Baldwin, M.D. were elected honorary members of this association.

Dr. Hawk then spoke on Cold Storage, a system which he condemned as at present conducted.

Dr. Runge spoke on the same subject. The methods by which fish and meat are kept so long a time was something new to most of the members. The president appointed Drs. Hawk, Runge and Dustan a committee to investigate the subject and report at next meeting. Dr. Dustan then read a paper on the advancement of veterinary science. The president appointed for essayists, Drs. E. Britton, J. C. Higgins, J. Gerth, Jr., and W. Runge, and delegates to the Pennsylvania State Veterinary Association, delegates to the New York State Veterinary Association, delegates to the New York County Association.

The legislative bill pertaining to the eradication of Tuberculosis was introduced in the Assembly at 4 o'clock. The meeting adjourned at 4.30 to meet on the second Thursday in August, 1894, in Newark, N. J.

S. LOCKWOOD, *Secretary.*

The suit of Dr. Amick against the St. Louis Clinique and Faculty of the College of Physicians and Surgeons of St. Louis, has been decided in favor of the plaintiff.—*Am. Med. Journal.*